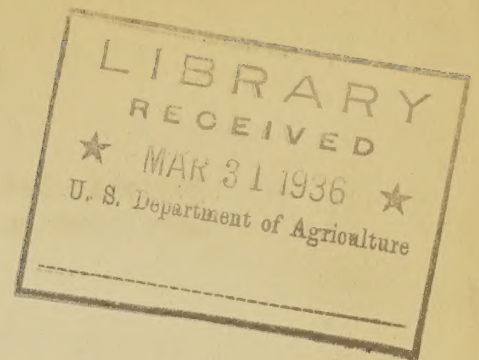


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ECONOMIC BRIEF WITH RESPECT TO THE PROPOSED MILK MARKETING
AGREEMENT AND PROPOSED ORDER FOR THE FALL RIVER, MASSACHUSETTS

MARKETING AREA

by

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Economic Brief with Respect to the Proposed Milk Marketing Agreement and Proposed Order for the Fall River, Massachusetts, Marketing Area. 1/

Introduction

The Proposed Marketing Agreement and Proposed Order for the Fall River Marketing Area is intended to increase returns to producers supplying milk to the area in accordance with the policy of Congress as stated in the Agricultural Adjustment Act. The principal methods for accomplishing this purpose are:

1. The classification of milk according to use.
2. The fixing of minimum prices which handlers shall pay for milk sold in each class.
3. The establishment of a base-rating plan for the proper proportion to producers of the proceeds of sales to handlers.

The economic basis for the proposed marketing agreement and proposed Order is set forth in detail in the following pages.

1/ See Part IV for description of the Marketing Area.

PART I

The Economic Emergency with Respect to Milk Producers in the States Which Supply Milk to the Fall River Marketing Area.

The milk supply of Fall River is produced in the States of Massachusetts and Rhode Island, approximately 55 percent originating in the former and 45 percent in the latter. The territorial extent of the production area is small, more than 90 percent of the supply originating within the proposed marketing area. ^{2/} Production is heavy enough in this area, however, to supply all of the fluid milk requirements of the market and a substantial portion of the requirements for cream to be distributed as fluid cream. ^{3/} Farmers in the area depend largely on dairying as a source of income. (See Part II.)

From 1929 to 1933 the prices received by farmers in Massachusetts and Rhode Island for milk sold wholesale declined steadily. (See Table I.) In 1933 the average farm price of milk sold wholesale in Massachusetts was 36.8 percent lower, and in Rhode Island 36.0 percent lower, than in 1929. While prices received by farmers for milk in these States declined materially, as indicated above, the index of prices paid by farmers for commodities bought declined to a considerably less extent, i.e., from 153 in 1929 to 109 in 1933, ^{4/} or a decline of 28.8 percent. Thus, there was a marked decline in the purchasing power of milk sold wholesale by farmers during the period 1929--1933, since the farm price of milk sold wholesale declined to a greater extent than the prices paid by farmers for commodities purchased.

During the period 1929--1933, there was a marked decline in the gross income from milk produced on farms and in the cash income from dairy products sold from farms in the United States and in the States of Massachusetts and Rhode Island. In 1929 the gross income from milk produced on farms in the United States was \$2,322,553,000; in 1933, it was \$1,262,554,000, a decline of 45.6 percent in the four-year period. In Massachusetts and Rhode Island the gross income from milk produced on farms declined 36.0 percent and 30.7 percent, respectively, in this period. (See Table 2.)

^{2/} See Part V of this brief for more detailed description of the production area.

^{3/} Considerable quantities of "outside" cream are purchased, largely through the Boston cream market.

^{4/} This is an index which represents the United States' average prices paid by farmers for commodities bought (1909--1914 = 100).

Table 1. Prices received by farmers for all milk sold wholesale in Massachusetts and Rhode Island, and index numbers of prices paid by farmers for commodities bought, by years 1929--1934, and by months January--October 1935.

| Year and month | Farm price of milk sold wholesale per hundredweight | | Index of prices paid by farmers for commod- ities bought 1909-- 1914 = 100 | |
|----------------------|--|--------------|---|--|
| | Massachusetts | Rhode Island | | |
| | Dollars | Dollars | Percent | |
| 1929 | 3.40 | 3.58 | 153 | |
| 1930 | 3.39 | 3.31 | 145 | |
| 1931 | 2.82 | 2.41 | 124 | |
| 1932 | 2.30 | 2.36 | 107 | |
| 1933 | 2.15 | 2.54 | 109 | |
| 1934 | 2.44 | 2.84 | 123 | |
| 1935 | 2.79 | 3.06 | 125 | |
| January | 2.85 | 3.15 | 126 | |
| February | 2.70 | 3.15 | 127 | |
| March | 2.70 | 3.05 | 127 | |
| April | 2.80 | 3.00 | 127 | |
| May | 2.70 | 2.90 | 127 | |
| June | 2.70 | 2.90 | 127 | |
| July | 2.70 | 3.05 | 126 | |
| August | 2.80 | 3.00 | 125 | |
| September | 2.75 | 2.85 | 123 | |
| October | 2.80 | 3.05 | 123 | |
| November | 3.00 | 3.30 | 122 | |
| December | 3.00 | 3.30 | 122 | |

Compiled from records of the Division of Crop and Livestock Estimates, Bureau of Agricultural Economics.

Table 2. Gross income from milk produced on farms in the United States and in specified States supplying milk to the Fall River Marketing Area, and percentage change from 1929 in such gross income, 1929--1934.

| Year | United States | | Massachusetts | | Rhode Island | |
|------|---------------|---------|---------------|---------|--------------|---------|
| | Gross | Percent | Gross | Percent | Gross | Percent |
| | income | change | income | change | income | change |
| | | from | | from | | from |
| | | 1929 | | 1929 | | 1929 |
| | 1,000 | | 1,000 | | 1,000 | |
| | dollars | | dollars | | dollars | |
| 1929 | 2,322,553 | - | 29,054 | - | 4,762 | - |
| 1930 | 2,030,853 | -12.6 | 28,954 | - .3 | 4,992 | + 4.83 |
| 1931 | 1,614,394 | -30.5 | 23,892 | -17.8 | 4,192 | -11.97 |
| 1932 | 1,260,424 | -45.7 | 19,810 | -31.8 | 3,444 | -27.68 |
| 1933 | 1,262,554 | -45.6 | 18,588 | -36.0 | 3,302 | -30.66 |
| 1934 | 1,421,253 | -38.8 | 20,829 | -28.3 | 3,695 | -22.41 |

Compiled from reports of the Division of Crop and Livestock Estimates, Bureau of Agricultural Economics, United States Department of Agriculture.

The 1933 cash income from dairy products sold from farms in the United States was 46.5 percent below the cash income from this source in 1929. In Massachusetts and Rhode Island the declines in such income from 1929 to 1933 were 37.2 and 31.1 percent, respectively. (See Table 3.)

Although in 1934 some improvement was evidenced in the gross and cash income from milk produced and dairy products sold from farms, comparison with such income in the year 1929 indicates that the income of the dairy farmers was still very unfavorable. Gross income from milk produced on farms in Massachusetts was 28.3 percent below that in 1929, and in Rhode Island it was 22.4 percent below 1929. Similarly, cash income from milk sold from farms in these States was 29.3 percent and 22.5 percent, respectively, below the 1929 levels.

The foregoing facts and considerations demonstrate conclusively that in Massachusetts and Rhode Island there was a marked decline during the period 1929--1933 in (1) the prices received by producers for milk sold wholesale, (2) the purchasing power of such milk, (3) the gross income from milk produced on farms, and (4) the cash income from dairy products sold from farms.

Table 3. Cash income from dairy products sold from farms in the United States, and in specified States supplying milk to the Fall River Marketing Area, and percentage change from 1929 in such cash income, 1929--1934.

| Year | United States | | Massachusetts | | Rhode Island | |
|--------------------|---------------|-------|---------------|-------|--------------|--------|
| | Percent | | Percent | | Percent | |
| | change | | change | | change | |
| | Cash | from | Cash | from | Cash | from |
| | income | 1929 | income | 1929 | income | 1929 |
| | 1,000 | | 1,000 | | 1,000 | |
| | dollars | | dollars | | dollars | |
| 1929 | 1,847,235 | - | 27,004 | - | 4,500 | - |
| 1930 | 1,615,363 | -12.6 | 26,955 | -.2 | 4,719 | 44.87 |
| 1931 | 1,278,531 | -30.8 | 22,093 | -18.2 | 3,960 | -12.00 |
| 1932 | 985,099 | -46.7 | 18,228 | -32.5 | 3,229 | -28.20 |
| 1933 ^{1/} | 988,880 | -46.5 | 16,955 | -37.2 | 3,099 | -31.13 |
| 1934 ^{1/} | 1,114,016 | -39.7 | 19,093 | -29.3 | 3,487 | -22.51 |

Compiled from reports of the Division of Crop and Livestock Estimates
Bureau of Agricultural Economics, United States Department of Agriculture.

^{1/} Includes benefit payments and Government purchases.

PART II

The Importance of Dairy Farming As an Agricultural Enterprise in the Area Which Supplies Milk to the Fall River Marketing Area.

The importance of milk production as an agricultural enterprise in Massachusetts and Rhode Island is indicated in Table 4.

Milk production is an important agricultural enterprise in the country as a whole. In 1929 the cash income from dairy products sold from farms was 18.0 percent of the cash income from sales of all agricultural products from farms in the United States. The cash income from milk sold from farms is relatively a much larger proportion of total cash income from agricultural production in the States of Massachusetts and Rhode Island than in the United States. In 1934 the cash farm income from milk sold from farms in the States of Massachusetts and Rhode Island represented 38.8 percent and 52.2 percent, respectively, of the total cash farm income from farm production in these States.

The fluid milk supply of Fall River is produced entirely within the Counties of Bristol, Massachusetts, and Bristol and Newport, Rhode Island. According to the Census in 1929, 33 percent, 44 percent, and 54 percent of the farms in these Counties, respectively, were classified as "dairy farms". The Census data are also significant in this connection in that they show that the density of milk production (pounds produced per square mile) is greater in Bristol and Newport Counties, Rhode Island, than in any other county in Rhode Island or in Massachusetts, and that density of production in Bristol County, Massachusetts, is the greatest of any county in the State. (See Tables 14 and 15 in Part V.)

Such being the case, activity directed toward the enhancement of prices to producers and financial returns from milk production in the area supplying milk to the Fall River Marketing Area is warranted, and necessary, to effectuate the policy of Congress as stated in the Agricultural Adjustment Act.

PART III

Comparison of the Prices Specified in the Proposed Marketing Agreement and Proposed Order for the Fall River Marketing Area with Parity Prices for Milk in the Fall River Marketing Area.

Section 2 of the Agricultural Adjustment Act, as amended, declares the policy of Congress to be:

"(1) Through the exercise of the powers conferred upon the Secretary of Agriculture under this title, to establish and maintain such

Table 4. Cash income from all farm products, and percentage cash income from dairy products was of cash income from all farm products, 1929--1934.

| Year | United States | | | Massachusetts | | | Rhode Island | | |
|-----------------|---------------|------------|--|---------------|------------|--|--------------|------------|--|
| | Percent of | | | Percent of | | | Percent of | | |
| | total cash | | | total cash | | | total cash | | |
| | income | | | income | | | income | | |
| | Cash | from farm | | Cash | from farm | | Cash | from farm | |
| | income | production | | income | production | | income | production | |
| | 1,000 | | | 1,000 | | | 1,000 | | |
| | dollars | | | dollars | | | dollars | | |
| 1929 | 10,284,479 | 18.0 | | 79,193 | 34.1 | | 9,478 | 47.5 | |
| 1930 | 7,987,606 | 20.2 | | 72,934 | 37.0 | | 9,335 | 50.6 | |
| 1931 | 5,795,148 | 22.1 | | 58,732 | 37.6 | | 7,761 | 51.0 | |
| 1932 | 4,368,296 | 22.6 | | 45,827 | 39.8 | | 5,932 | 54.4 | |
| 1933 <u>1</u> / | 5,402,094 | 18.3 | | 48,948 | 34.6 | | 6,570 | 47.2 | |
| 1934 <u>1</u> / | 6,261,123 | 17.8 | | 49,234 | 38.8 | | 6,677 | 52.2 | |

Compiled from reports of the Division of Crop and Livestock Estimates, Bureau of Agricultural Economics.

1/ Includes benefit payments and Government purchases.

balance between the production and consumption of agricultural commodities, and such marketing conditions therefor, as will reestablish prices to farmers at a level that will give agricultural commodities a purchasing power with respect to articles that farmers buy, equivalent to the purchasing power of agricultural commodities in the base period; and, in the case of all commodities for which the base period is the pre-war period, August 1909 to July 1914, will also reflect current interest payments per acre on farm indebtedness secured by real estate and tax payments per acre on farm real estate as contrasted with such interest payments and tax payments during the base period. The base period in the case of all agricultural commodities except tobacco and potatoes shall be the pre-war period, August 1909--July 1914. In the case of tobacco and potatoes, the base period shall be the post-war period, August 1919--July 1929."

In section 8e of the Agricultural Adjustment Act, as amended, it is provided that:

"In connection with the making of any marketing agreement or the issuance of any order, if the Secretary finds and proclaims that, as to any commodity specified in such marketing agreement or order, the purchasing power during the base period specified for such commodity in section 2 of this title cannot be satisfactorily determined from available statistics of the Department of Agriculture, the base period, for the purposes of such marketing agreement or order, shall be the post-war period, August 1919--July 1929, or all that portion thereof for which the Secretary finds and proclaims that the purchasing power of such commodity can be satisfactorily determined from available statistics of the Department of Agriculture."

In the case of milk produced for sale in the Fall River Marketing Area, available statistics in the Department of Agriculture with respect to the August 1909--July 1914 base period are inadequate for the proper determination of the August 1909--July 1914 base period price for milk. Parity prices for milk sold by producers to handlers in the Fall River Marketing Area have been determined, therefore, from available statistics of the Department of Agriculture with respect to the period August 1923 to July 1929, inclusive. The parity prices so determined for Class I milk containing 3.7 percent butterfat, f.o.b. city, are shown in table 5. Such parity prices indicate that the prices specified in the proposed marketing agreement and proposed order

Table 5. FALL RIVER: Index of prices paid by farmers for commodities bought, index of seasonal variation, price per hundredweight of 3.7 percent milk delivered f.o.b. city and parity prices adjusted for seasonal variation, average August 1923 - July 1929, by years 1930-1935, and by months 1935 and 1936.

| Year and month | Index | Index | Prices per hundredweight of 3.7 percent milk, f.o.b. city | |
|---------------------------|---|-------------------------------------|---|--|
| | prices paid by farmers for commodities bought | of seasonal ^{1/} variation | Paid by dealers ^{2/} | Parity adjusted for seasonal variation |
| August 1923- July 1929 | 100.0 | 100.0 | 4.28 ^{3/} | |
| 1934 | 79.8 | | 3.19 ^{4/} | |
| 1935 | 81.1 | | 3.40 | 3.47 |
| January | 81.8 | 101.2 | 3.40 | 3.54 |
| February | 82.4 | 100.0 | 3.40 | 3.53 |
| March | 82.4 | 98.4 | 3.40 | 3.47 |
| April | 82.4 | 98.2 | 3.40 | 3.46 |
| May | 82.4 | 98.3 | 3.40 | 3.47 |
| June | 82.4 | 99.1 | 3.40 | 3.49 |
| July | 81.8 | 99.9 | 3.40 | 3.50 |
| August | 81.1 | 101.8 | 3.40 | 3.53 |
| September | 79.8 | 101.9 | 3.40 | 3.48 |
| October | 79.8 | 100.7 | 3.40 | 3.44 |
| November | 79.2 | 100.0 | 3.40 | 3.39 |
| December | 79.2 | 100.5 | 3.40 | 3.41 |
| 1936 | | | | |
| January | 79.2 | 101.2 | 3.40 | 3.43 |
| February | | | | |
| March | | | | |
| April | | | | |
| May | | | | |
| June | | | | |
| July | | | | |

^{1/} Smoothed ratio of calculated prices to a moving average.

^{2/} License price quoted from April 1934 on.

^{3/} Calculated by adjusting Boston surplus prices for freight cost to Fall River and weighting for percentage of total milk supply in Class II. The Class I price was calculated by relating the balance of the milk to the flat prices supplied by N.E.M.P.A.

^{4/} 9 months average.

for the Fall River Marketing Area are within the parity limit as required by the Agricultural Adjustment Act, as amended.

As of January 1936, the parity price, f.o.b. city, for Class I milk containing 3.7 percent butterfat, as determined for the Fall River Marketing Area, was \$3.43 per hundredweight.

Current supply and demand conditions, discussed in the following pages, indicate the economic basis for the minimum prices to producers contained in the proposed marketing agreement and proposed order. Such prices do not attain parity but, as subsequent discussion will demonstrate, are higher than would be paid by handlers were no marketing agreement or order effective in the marketing area. The prices specified, therefore, tend to effectuate the policy stated by Congress in the Agricultural Adjustment Act, and are feasible in view of the current consumptive demand for milk in the Fall River Marketing Area.

PART IV

The Character of the Commerce in Milk in the Fall River Marketing Area.

The Fall River Marketing Area, as defined by the proposed marketing agreement and proposed order, is as follows: The City of Fall River, the towns of Swansea and Somerset, Massachusetts, the towns of Portsmouth, Tiverton, and Little Compton, Rhode Island, and so much of the town of Westport, Massachusetts, as lies west of the line running midway between Drift and Pine Hill Roads. The population of the City of Fall River and these towns, according to the 1930 Census, totalled 137,950, distributed as follows:

| | | |
|----------------|----|----------|
| Fall River | -- | 115,274 |
| Swansea | -- | 3,941 |
| Somerset | -- | 5,398 |
| Westport | -- | 4,408 5/ |
| Little Compton | -- | 1,382 |
| Tiverton | -- | 4,578 |
| Portsmouth | -- | 2,969 |

More than 125 thousand of the total population of the proposed marketing area (or approximately 93 percent) reside in Massachusetts.

The proposed marketing area is the City of Fall River and contiguous urban areas which are served predominantly by dealers located in Fall River. Milk distribution by these dealers extends beyond the boundaries indicated, but such territory usually is served also by dealers from other areas. For example, dealers in Fall River supply milk to certain customers in that part of the town of Westport lying east of the boundary line indicated in the above description of the proposed marketing area, and dealers from New Bedford likewise supply

5/ Only part of the population of Westport resides in the proposed marketing area.

Table 6. Fall River, Massachusetts: Net Class I and Class II sales, by months, by States of origin, April 1934-- June 1935.

| Year and month | Massachusetts | | | Rhode Island | | |
|----------------|---------------|----------|----------------------|--------------|-----------|----------------------|
| | Total of | | | Total of | | |
| | Class I | Class II | Class I and Class II | Class I | Class II | Class I and Class II |
| | Pounds | Pounds | Pounds | Pounds | Pounds | Pounds |
| 1934 | | | | | | |
| April | 1,223,112 | 28,014 | 1,251,126 | 925,148 | 132,631 | 1,057,779 |
| May | 1,356,677 | 39,088 | 1,395,765 | 1,051,618 | 215,601 | 1,267,219 |
| June | 1,328,221 | 27,674 | 1,355,895 | 1,032,077 | 184,274 | 1,216,351 |
| July | 1,367,647 | 26,073 | 1,393,720 | 1,038,933 | 165,938 | 1,204,871 |
| August | 1,380,337 | 52,909 | 1,433,246 | 1,045,616 | 177,251 | 1,222,867 |
| September | 1,268,588 | 48,804 | 1,317,392 | 853,368 | 283,831 | 1,137,199 |
| October | 1,303,685 | 57,051 | 1,360,736 | 830,154 | 260,881 | 1,091,035 |
| November | 1,268,278 | 16,927 | 1,285,205 | 877,990 | 112,691 | 990,681 |
| December | 1,303,208 | 29,904 | 1,333,112 | 812,062 | 209,098 | 1,021,160 |
| 1935 | | | | | | |
| January | 1,333,887 | 44,781 | 1,378,668 | 795,998 | 258,903 | 1,054,901 |
| February | 1,175,961 | 41,414 | 1,217,375 | 704,996 | 248,098 | 953,094 |
| March | 1,342,405 | 36,618 | 1,379,023 | 814,056 | 315,212 | 1,129,268 |
| April | 1,321,213 | 57,824 | 1,379,037 | 850,593 | 281,273 | 1,131,866 |
| May | 1,380,960 | 129,231 | 1,510,191 | 828,590 | 474,150 | 1,302,740 |
| June | 1,342,645 | 129,862 | 1,472,507 | 807,400 | 451,476 | 1,258,876 |
| Total | 19,696,824 | 766,174 | 20,462,998 | 13,268,599 | 3,771,308 | 17,039,907 |

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certain customers in that part of Westport which is located within the proposed marketing area. 6/ On the south, the Fall River area borders the Newport area, and on the west and northwest it is bordered by the area supplied by dealers located in Providence, Rhode Island. The area described constitutes one market by reason of the fact that it is supplied by the same groups of producers and handlers and the same supply and demand factors are operative throughout the area.

Table 12 in Part V below shows the density of population per square mile of the various towns and cities in the marketing area. Only two, the town of Westport, Massachusetts, and the town of Little Compton, Rhode Island, have population densities of less than 100 per square mile, i.e., 83.2 and 61.4, respectively.

6/ See A.A.A. Docket No. 29, p. 109 (Hearing held Aug. 22-23, 1933, on Proposed Marketing Agreement for Southeastern New England Markets).

Milk distributed throughout the area meets practically the same sanitary requirements. A thorough system of State regulation and inspection was developed in Rhode Island before the establishment of such a system by the Commonwealth of Massachusetts. Both the Massachusetts system of inspection and that performed by the City of Fall River are similar to that in Rhode Island. 7/ Farm inspection requirements being very similar, such differences as may exist with respect to sanitation requirements applied to distribution in different parts of the marketing area are not significant to such a degree as would give any portion of the area its own peculiar supply and demand factors and thus cause it to be unaffected directly by supply and demand conditions in the rest of the area. For example, the Fall River Board of Health requires that all pasteurized milk contain not more than 25,000 bacteria per c.c. when delivered, whereas the Massachusetts law permits 40,000 bacteria per c.c. But this difference is minimized when it is considered that the Rhode Island law establishes a limit of 25,000 bacteria per c.c. Moreover, competition within such a small area tends to make the strictest legal standards applicable in any portion of the area the standard of the entire area.

The milk supply, being generally of similar quality, moves freely from one part of the area to another. All handlers in the market, excepting certain producer-handlers distributing only a very small percentage of the total volume of milk distributed in the market, have located their plants in the City of Fall River. Moreover, any producer-handler who sells milk in the city must, if he establishes a new plant, locate such plant in the city. 8/ This situation necessitates that most of the milk distributed in that part of the marketing area outside of Fall River be brought into the city before it is distributed.

Table 6 shows the respective quantities of milk purchased by handlers in Fall River from producers in Massachusetts and Rhode Island, by months, April 1934 to June 1935, inclusive.

The 43 handlers who distributed milk in the Fall River Marketing Area during the period April 1934--June 1935 may be classified under five types, according to place of business and the sources of their milk supply, by States, as follows:

- Type I. Handlers located in Massachusetts purchasing milk from producers in Massachusetts only.
- Type II. Handlers located in Massachusetts purchasing milk from producers in Rhode Island only.
- Type III. Handlers located in Massachusetts purchasing milk from producers in both Massachusetts and Rhode Island.

7/ A.A.A. Docket No. 29, p. 226, testimony of W. D. Nichols, formerly employed as Chief Milk Inspector by the State of Rhode Island.

8/ Information supplied by the Market Administrator, License No. 48.

Type IV: Handlers located in Rhode Island purchasing milk from producers in Rhode Island only.

Type V. Handlers located in Rhode Island purchasing milk from producers in both Rhode Island and Massachusetts.

Handlers of the first type purchased 7,552,364 pounds of milk from producers. This quantity represented 45.9 percent of all milk purchased from producers in Massachusetts by all handlers and 25.2 percent of all milk purchased from all producers by all handlers. (See Table 7.)

Type II handlers purchased 1,220,140 pounds of milk from producers. This quantity represents 9.0 percent of the total amount of milk purchased from producers in Rhode Island and 4.1 percent of the total quantity of milk purchased from producers by all handlers. (See Table 7.)

Handlers of the third type purchased 20,460,578 pounds of milk, which represented 68.3 percent of all milk purchased from all producers by all handlers. These handlers purchased 8,679,378 pounds of milk from Massachusetts producers, which was 52.7 percent of the total purchases from Massachusetts producers and 29.0 percent of all milk purchased from all producers. They also purchased 11,781,200 pounds from Rhode Island producers, which amounted to 87.3 percent of all milk purchased from Rhode Island producers and 39.3 percent of the total volume of milk purchased from all producers by all handlers. (See Table 7.)

Finally, handlers in types IV and V purchased 725,688 pounds of milk from producers. This quantity of milk represents 2.4 percent of the total milk purchased from all producers by all handlers. Of this quantity, 228,470 pounds were purchased from Massachusetts producers, amounting to 1.4 percent of all milk purchased from Massachusetts producers by all handlers and 0.7 percent of all milk purchased by handlers from all producers. Handlers in these classifications purchased also 497,218 pounds from Rhode Island producers, which quantity was 3.7 percent of total purchases by handlers from producers in Rhode Island and 1.7 percent of all milk purchased from producers by all handlers. (See Table 7.)

Section 8c (1) of the Agricultural Adjustment Act, as amended, provides that: "The Secretary of Agriculture shall, subject to the provisions of this section, issue, and from time to time amend, orders applicable to processors, associations of producers, and others engaged in the handling of any agricultural commodity or product thereof specified in subsection (2) of this section. Such persons are referred to in this title as 'handlers'. Such orders shall regulate, in the manner hereinafter in this section provided, only such handling of such agricultural commodity, or product thereof, as is in the current of interstate or foreign commerce, or which directly burdens, obstructs, or affects interstate or foreign commerce in such commodity or product thereof."

It has been shown that the Class I price provided by the proposed agreement and proposed order is within the parity limit prescribed by Congress in the Agricultural Adjustment Act. The prices provided are higher, however, than would be paid producers if the license now in effect were discontinued and no marketing agreement or order made effective.

Table 7. Total purchases from producers, by States, April 1, 1934--June 30, 1935, by handlers in the Fall River Marketing Area, according to place of business and source of supply from producers.

| Type of handler ^{1/} | Massachusetts | | | Rhode Island | | | Total | | |
|-------------------------------|-------------------------------------|--------------------|--------|------------------------------------|--------------------|------------|-------------------------------|-----------------|--|
| | Percent | | Volume | Percent | | Volume | Percent of all milk purchased | No. of handlers | |
| | All milk purchased in Massachusetts | All milk purchased | | All milk purchased in Rhode Island | All milk purchased | | | | |
| | Pounds | | Pounds | | | Pounds | | | |
| Type I | 7,552,364 | 45.9 | 25.2 | | | 7,552,364 | 25.2 | 22 | |
| Type II | | | | 9.0 | 4.1 | 1,220,140 | 4.1 | 5 | |
| Type III | 8,679,378 | 52.7 | 29.0 | 87.3 | 39.3 | 20,460,578 | 68.3 | 13 | |
| Types IV and V | 228,470 | 1.4 | .7 | 3.7 | 1.7 | 725,688 | 2.4 | 3 | |
| Totals | 16,460,212 | 100.0 | 54.9 | 100.0 | 45.1 | 29,958,770 | 100.0 | 43 | |

Compiled from reports of the Market Administrator, License No. 48

^{1/} See text for definition of type of handler.

As already has been pointed out, nearly half of the milk supply of the Fall River Marketing Area moves across the Massachusetts--Rhode Island State line in process of delivery from producers' farms to handlers' plants. Much of this milk is mingled in handlers' plants with milk produced in Massachusetts and distributed to consumers in Massachusetts. A small portion of it moves back across the Massachusetts--Rhode Island State line in being distributed to consumers in Rhode Island by handlers whose plants are located in Massachusetts. In either case such milk is sold in competition with milk which is both produced and consumed within the State of Rhode Island and with milk which is both produced and consumed within the Commonwealth of Massachusetts.

The question as to the degree to which the regulation of commerce in milk as specified in the proposed marketing agreement and proposed order must be extended to the handling of milk which does not move across the State line or does not become mingled with milk which has moved across the State line depends upon the extent to which the handling of such milk burdens, obstructs, or affects the interstate commerce in milk in the Fall River Marketing Area. As noted above, the prices which would be fixed by the proposed marketing agreement and proposed order are higher than those which would prevail if no governmental regulation of prices were in effect. If prices were fixed with respect to that portion of the milk supply which moves across the State line, or becomes mingled with milk which has moved across the State line, and were not fixed with respect to milk which does not move across the State line or become mingled with milk which does so move, it would be impossible for any marketing agreement or order effectively to increase prices to producers in the area supplying milk to Fall River and thus effectuate the policy of Congress as stated in the Agricultural Adjustment Act.

With prices fixed by a marketing agreement and order for a part of the supply higher than otherwise would be paid, handlers would tend to change their sources of supply in order to secure that milk with respect to which prices were not fixed, i.e., milk not moving across the State line, or not becoming mingled with milk which so moves, which milk probably would sell at prices lower than the price provided by the proposed marketing agreement and proposed order. This is especially true under the marketing plan contained in the proposed agreement and order, according to which each producer supplying the market receives a lower price for his share of the surplus in excess of the actual fluid milk requirements. Handlers buying milk in Massachusetts only could pay the same price paid by handlers complying with the agreement and order (which would be a combination of the fluid milk and excess prices), and yet sell practically all their milk as fluid milk. In this way they would receive some milk at the excess price even though they sold it as fluid milk at fluid milk prices. Thus, a larger volume of milk moving across the State line would be sold at the excess price, prices to producers in Rhode Island would be lower, and some producers in that State probably would be deprived of their market.

Obviously, the competition between milk from different sources would bring about the results set forth in the preceding paragraph. Handlers in the Fall River Marketing Area have not, in the past, priced milk differently to different producers according to the State of origin of the

milk. Moreover, the producers' cooperatives in the market have made no distinction between milk produced in the different States in their bargaining with handlers.

The foregoing facts and considerations demonstrate conclusively that the larger portion of all milk handled in the Fall River Marketing Area actually moves across a State line, or is directly commingled with milk which so moves, and that, in order to regulate the handling of such milk so as to effectuate the policy of Congress as stated in the Agricultural Adjustment Act, the handling of all other milk in the marketing area must also be regulated.

PART V

The Price Structure Provided by the Proposed Marketing Agreement and Proposed Order.

The general discussion of the price structure for milk is contained in Technical Paper No. 1, published by the Dairy Section of the Agricultural Adjustment Administration.^{9/} In this paper it is shown that the classified price plan of selling milk to dealers develops from competition among dealers to secure a supply of milk that is closely related to their requirements for milk for their fluid milk trade. This paper also shows how (1) differences in costs of transporting a unit of milk in fluid form and the product equivalent of a unit of fluid milk, and (2) varying sanitation regulations applicable to milk produced for fluid use and milk produced for use in manufacturing dairy products, affect the differential between the prices of milk used for different purposes.

The price structure provided by the proposed marketing agreement and proposed order relative to milk produced for sale in the Fall River Marketing Area would result in approximately the same total returns to producers as that provided in License No. 48, which License became effective in the market April 1, 1934. The following discussion sets forth certain facts concerning classification of sales and uses of milk, and supply and demand conditions. The proposed classification and price schedule appear reasonable in relation to these facts.

1. Use classification.

The two classes of milk provided by the proposed agreement and order are defined in the same manner as in License No. 48, effective in the Fall River market since April 1, 1934. This classification, as defined, is in conformity with both custom in the market and sound milk marketing practice.

Prior to the effectuation of License No. 48, most dealers were paying producers according to a base and surplus plan with individual

^{9/} Gaumnitz, E. W., and Reed, C. M., The Price Structure for Milk, Technical Paper No. 1, Dairy Section, Agricultural Adjustment Administration, United States Department of Agriculture. (Appendix A.)

dealer pools. Testimony presented at a hearing relative to a proposed milk marketing agreement for four Southeastern New England markets (Providence, Fall River, New Bedford, and Newport), held in Washington, D. C., August 22--23, 1933, ^{10/} indicates that considerable progress already had been made toward the establishment of an organized marketing system. The Fall River Milk Producers' Association, in cooperation with the Fall River Milk Dealers' Association, had made plans for a market "audit" in order that producers might be assured that they were being paid fluid milk prices and surplus ^{11/} prices for the proper quantities of milk. A system of base rating had been introduced by a small number of dealers several years earlier, but no general plan of allotting bases to new producers had been developed.

The Fall River production area is a deficit production area, insufficient milk being produced to supply all the fluid milk and fluid cream requirements of the marketing area. Consequently, the fluid cream supply from local producers must be supplemented by supplies originating in surplus cream producing areas. The actual channel through which such supplies are secured is usually the Boston cream market.

The proposed marketing agreement and proposed order define as Class I milk all milk sold or distributed as milk, chocolate milk or flavored milk, and as Class II milk all milk specifically accounted for (a) as being sold, distributed or disposed of other than as milk, chocolate milk, or flavored milk, and (b) as actual plant shrinkage . . . The inclusion of chocolate milk and flavored milk in Class I is prompted by the consideration that such products are essentially in the same category as fluid milk. Such products cannot be made solely from cream nor solely from skim milk; the milk from which such products are manufactured must be brought to the market as fluid milk; they are merchandized in the same manner as fluid milk; and they must meet the same requirements as to sanitation as in the case of fluid milk.

The Fall River milk production area, being a deficit area, does not produce milk to any significant extent for manufacturing purposes, so that most of the milk produced for sale in the Fall River Marketing Area is utilized either as fluid milk or fluid cream. There is no reason, therefore, for classifying milk into more than two classes for purposes of making payment to producers.

2. Minimum prices to producers provided by the proposed marketing agreement and proposed order.

The minimum prices provided by the proposed agreement and order which handlers are required to pay for Class I and Class II milk are as follows:

^{10/} A.A.A. Docket No. 29, p. 96 ff.

^{11/} "Surplus" in the sense of being in excess of fluid milk requirements.

Class I milk, \$3.35 per hundredweight.

Class II milk, per hundredweight: Divide the price per can of bottling quality cream at Boston by 33 (the number of pounds of butterfat per can); and multiply the result by 3.7 (pounds of butterfat per hundredweight of milk).

a. Price history of the Fall River market.

Table 5, in part III above, shows that during the period August 1923-July 1929 the average price of Class I milk containing 3.7 percent butterfat was \$4.28 per hundredweight. The Class I price provided by License No. 48, when that License first became effective, April 1, 1934, was \$3.0225 per hundredweight. This was a continuation of the price theretofore being paid, except that the License did not permit a 10-cent per hundredweight "station charge" on base milk which dealers had deducted.^{12/}

By the issuance of an amended License, effective September 1, 1934, the Class I price was increased to \$3.40 per hundredweight, at which level it has since remained.

The lack of officially reported "surplus" or Class II milk prices and the fact that few dealers paid on this basis for any considerable length of time prior to the effectuation of License No. 48 necessitates that consideration of this topic be limited to information presented at the hearing relative to a proposed milk marketing agreement for the Southeastern New England markets (including Fall River) held August 22-23, 1933. The Producers and Distributors Schedule, presented by the producers' association in connection with the record of the hearing^{13/}, indicates that producers were being paid approximately \$.93 per hundredweight for Class II milk. A similar schedule submitted by the Fall River Milk Dealers' Association stated that the price being paid for Class II milk was \$1.05 per hundredweight. The difference would appear to arise from the fact that the former was an f.o.b. farm price while the latter probably represented the average f.o.b. city price.

The Class II price provided in the license which became effective April 1, 1934, was 3.7 times the price per pound of 92-score butter at Boston plus 30 percent. On May 1 the Class II price was reduced to 3.7 times the price per pound of 92-score butter at Boston plus 10 percent, plus 8-1/2 cents, in order to bring Class II prices in line with prices paid in the marketing area for cream secured from other sources. In the amended license which became effective September 1, 1934, the formula for determining the Class II price was altered to conform with the Class II price in Boston. This formula,^{14/} based on the price of butterfat in

^{12/} See "Milk Producers' and Distributors' Schedule" filed by Fall River Milk Producers' Association, A.A.A. Docket No. 29, and by Fall River Milk Dealers' Association, *ibid*.

^{13/} A.A.A. Docket No. 29

^{14/} The price per can of bottling quality cream at Boston divided by 33, times 3.7, less 11-1/2 cents.

cream of bottling quality, resulted at the time in a slight increase in the Class II price over that provided in the previous amendment. Table 8 shows the Class I, Class II, base milk, and weighted average prices by delivery periods which have been paid pursuant to the provisions of License No. 48.

The result of the license Class II price has been to keep the price of butterfat in locally produced milk which is used for cream in a closer relationship with the price of butterfat in cream purchased from outside the local production area than probably was the case before the license became effective. For example, at the time the above "Class II" milk prices were quoted by the Fall River Milk Producers' Association and the Fall River Milk Dealers' Association (September 1, 1933), the price of "outside" cream was said to be \$13.25 per can.^{15/} This price amounted to approximately 40 cents per pound butterfat as compared to 25 cents per pound butterfat received by producers for Class II milk, if the Producers' Association figures are accepted, or 28 cents, if the Dealers' Association figures are accepted.

Table 9 shows the average farm prices per hundredweight which producers in Massachusetts received for all milk sold at wholesale during the period 1909-1935. These prices are not comparable to Class I prices f.o.b. Fall River in that they represent prices received by producers at the farm for milk sold in all markets and for all uses. The price of \$2.44 per hundredweight received by Massachusetts producers in 1934 was lower than the prices received in all other years during the period excepting 1909, 1911, 1932, and 1933.

b. Demand conditions.

(1) Business and industrial activity.

The following discussion of business conditions in relation to purchasing power in the Fall River Marketing Area is based largely on the Monthly Review of Industrial and Financial Conditions in the New England District, published by the Federal Reserve Bank of Boston, November 1, 1935. The various business indicators utilized by this report show that general business conditions are such that improvement in consumer purchasing power probably has occurred in recent months and that further improvement might be expected.

The City of Fall River is one of the leading cotton textile manufacturing centers in the country and consumer purchasing power in the Fall River Marketing Area is very closely associated with conditions in that industry. A marked decline in industrial activity had resulted in a considerable reduction in fluid milk purchases in Fall River by August 1933.^{16/} The unfavorable industrial situation was further aggravated by the cotton textile strike of 1934, although reported sales of Class I milk do not indicate that any reduction in fluid milk purchases resulted directly therefrom. However, it is possible that the volume was not so great as it might have been had no strike occurred.

^{15/} Milk Producers' and Distributors' Schedules, A.A.A. Docket No. 29.

^{16/} Testimony contained in A.A.A. Docket No. 29, p. 96.

Table 8. Prices paid by dealers for 3.7 percent milk per hundredweight, Fall River, Massachusetts, f.o.b. city, by delivery periods, April 1934 to December 1935, inclusive.

| Delivery period | Class I Dollars | Class II Dollars | Base Dollars | Weighted average Dollars |
|-----------------|--------------------|---------------------|-----------------|--------------------------------|
| <u>1934</u> | | | | |
| Apr. 1 -15 | 3.0225 | 1.1625 | 3.1607 | 2.86691 |
| " 16-30 | 3.0225 | 1.2025 | 3.0333 | 2.91921 |
| May 1 -15 | 3.0225 | 1.1432 | 3.0280 | 2.85755 |
| " 16-31 | 3.0225 | 1.1188 | 3.0181 | 2.83389 |
| June 1 -15 | 3.0225 | 1.1369 | 2.9857 | 2.83120 |
| " 16-30 | 3.0225 | 1.1384 | 3.0190 | 2.90616 |
| July 1 -15 | 3.0225 | 1.1081 | 2.9252 | 2.88530 |
| " 16-31 | 3.0225 | 1.1306 | 2.9211 | 2.88074 |
| Aug. 1 -15 | 3.0225 | 1.2168 | 2.9349 | 2.88523 |
| " 16-31 | 3.0225 | 1.2495 | 2.8910 | 2.85019 |
| Sept. 1 -15 | 3.40 | 1.2481 | 3.1997 | 3.11324 |
| " 16-30 | 3.40 | 1.1844 | 3.1662 | 3.10125 |
| Oct. 1 -15 | 3.40 | 1.1770 | 3.1481 | 3.08181 |
| " 16-31 | 3.40 | 1.148 | 3.2142 | 3.16006 |
| Nov. 1 -15 | 3.40 | 1.2500 | 3.3560 | 3.30975 |
| " 16-30 | 3.40 | 1.4430 | 3.3005 | 3.25655 |
| Dec. 1 -15 | 3.40 | 1.4800 | 3.2819 | 3.25204 |
| " 16-31 | 3.40 | 1.5130 | 3.2003 | 3.16019 |
| <u>1935</u> | | | | |
| Jan. 1 -15 | 3.40 | 1.535 | 3.2128 | 3.16582 |
| " 16-31 | 3.40 | 1.59 | 3.2198 | 3.17544 |
| Feb. 1 -15 | 3.40 | 1.777 | 3.2367 | 3.19534 |
| " 16-28 | 3.40 | 1.746 | 3.2026 | 3.16316 |
| Mar. 1 -15 | 3.40 | 1.6430 | 3.2106 | 3.16536 |
| " 16-31 | 3.40 | 1.724 | 3.2020 | 3.14950 |
| Apr. 1 -15 | 3.40 | 1.795 | 3.2533 | 3.19339 |
| " 16-30 | 3.40 | 1.612 | 3.2083 | 3.13754 |
| May 1 -15 | 3.40 | 1.454 | 3.1104 | 3.02960 |
| " 16-31 | 3.40 | 1.305 | 3.0439 | 2.89153 |
| June 1 -15 | 3.40 | 1.163 | 3.0408 | 2.88826 |
| " 16-30 | 3.40 | 1.083 | 3.0318 | 2.93495 |
| July 1 -15 | 3.40 | 1.062 | 3.1114 | 3.00639 |
| " 16-31 | 3.40 | 1.138 | 3.1672 | 3.10081 |
| Aug. 1 -15 | 3.40 | 1.168 | 3.1331 | 3.06220 |
| " 16-31 | 3.40 | 1.135 | 3.1567 | 3.11159 |
| Sept. 1 -15 | 3.40 | 1.135 | 3.0282 | 3.01021 |
| " 16-30 | 3.40 | 1.106 | 3.1231 | 3.08862 |
| Oct. 1 -15 | 3.40 | 1.161 | 3.1465 | 3.10721 |
| " 16-31 | 3.40 | 1.343 | 3.2103 | 3.20477 |
| Nov. 1 -16 | 3.40 | 1.552 | 3.2386 | 3.24621 |
| " 16-30 | 3.40 | 1.740 | 3.2114 | 3.27489 |
| Dec. 1 -15 | 3.40 | 1.737 | 3.2395 | 3.24441 |
| " 16-31 | 3.40 | 1.625 | 3.1979 | 3.18063 |

Table 9. Farm price of all milk sold, wholesale, per hundredweight, Massachusetts 1909--1935.

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Av. |
|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| | Dollars | Dollars | Dollars | Dollars | Dollars | Dollars | Dollars | Dollars | Dollars | Dollars | Dollars | Dollars | Dollars |
| 1909 | 2.40 | 2.40 | 2.30 | 2.15 | 2.00 | 2.00 | 2.00 | 2.15 | 2.30 | 2.40 | 2.55 | 2.70 | 2.28 |
| 1910 | 2.70 | 2.60 | 2.50 | 2.40 | 2.20 | 2.10 | 2.35 | 2.50 | 2.55 | 2.55 | 2.55 | 2.55 | 2.46 |
| 1911 | 2.45 | 2.45 | 2.30 | 2.30 | 2.10 | 2.10 | 2.35 | 2.55 | 2.55 | 2.65 | 2.70 | 2.70 | 2.42 |
| 1912 | 2.60 | 2.60 | 2.60 | 2.35 | 2.15 | 2.00 | 2.25 | 2.30 | 2.35 | 2.60 | 2.80 | 2.80 | 2.45 |
| 1913 | 2.70 | 2.65 | 2.55 | 2.45 | 2.20 | 2.20 | 2.45 | 2.50 | 2.50 | 2.75 | 2.90 | 2.90 | 2.56 |
| 1914 | 2.80 | 2.70 | 2.60 | 2.40 | 2.20 | 2.10 | 2.35 | 2.35 | 2.35 | 2.60 | 2.85 | 2.85 | 2.51 |
| 1915 | 2.70 | 2.60 | 2.50 | 2.40 | 2.20 | 2.10 | 2.30 | 2.35 | 2.50 | 2.60 | 2.85 | 2.85 | 2.50 |
| 1916 | 2.70 | 2.60 | 2.50 | 2.40 | 2.20 | 2.10 | 2.30 | 2.30 | 2.40 | 2.70 | 2.95 | 2.95 | 2.51 |
| 1917 | 2.80 | 2.70 | 2.60 | 2.60 | 2.50 | 2.40 | 2.65 | 2.90 | 3.15 | 3.40 | 3.40 | 3.40 | 2.88 |
| 1918 | 3.65 | 3.90 | 4.15 | 3.95 | 3.70 | 3.60 | 3.80 | 4.00 | 4.05 | 4.15 | 4.30 | 4.50 | 3.98 |
| 1919 | 4.45 | 4.40 | 4.35 | 4.30 | 4.15 | 4.15 | 4.40 | 4.65 | 4.65 | 4.75 | 4.95 | 4.95 | 4.50 |
| 1920 | 4.70 | 4.50 | 4.60 | 4.50 | 4.40 | 4.30 | 4.40 | 4.50 | 4.60 | 4.60 | 4.60 | 4.60 | 4.52 |
| 1921 | 4.50 | 4.25 | 4.00 | 3.75 | 3.50 | 3.50 | 3.60 | 3.70 | 3.80 | 3.80 | 3.80 | 3.70 | 3.82 |
| 1922 | 3.45 | 3.35 | 3.20 | 3.10 | 2.90 | 2.90 | 2.90 | 3.00 | 3.25 | 3.25 | 3.25 | 3.40 | 3.16 |
| 1923 | 3.40 | 3.40 | 3.40 | 3.20 | 3.10 | 3.10 | 3.30 | 3.40 | 3.55 | 3.60 | 3.70 | 3.60 | 3.40 |
| 1924 | 3.60 | 3.40 | 3.20 | 2.95 | 2.95 | 2.80 | 2.90 | 3.00 | 3.20 | 3.20 | 3.40 | 3.30 | 3.16 |
| 1925 | 3.20 | 3.00 | 3.00 | 2.90 | 2.90 | 2.70 | 2.80 | 3.00 | 3.25 | 3.50 | 3.55 | 3.55 | 3.11 |
| 1926 | 3.55 | 3.30 | 3.15 | 3.10 | 3.10 | 2.85 | 3.05 | 3.30 | 3.30 | 3.30 | 3.40 | 3.20 | 3.22 |
| 1927 | 3.20 | 3.00 | 2.90 | 2.90 | 2.90 | 2.85 | 3.00 | 3.25 | 3.50 | 3.50 | 3.50 | 3.50 | 3.17 |
| 1928 | 3.40 | 3.35 | 3.25 | 3.15 | 3.05 | 3.00 | 3.10 | 3.20 | 3.35 | 3.60 | 3.60 | 3.55 | 3.30 |
| 1929 | 3.40 | 3.40 | 3.30 | 3.30 | 3.20 | 3.10 | 3.30 | 3.50 | 3.60 | 3.60 | 3.60 | 3.55 | 3.40 |
| 1930 | 3.50 | 3.50 | 3.30 | 3.30 | 3.20 | 3.00 | 3.20 | 3.40 | 3.55 | 3.60 | 3.60 | 3.50 | 3.39 |
| 1931 | 3.30 | 2.95 | 2.95 | 2.70 | 2.70 | 2.65 | 2.65 | 2.85 | 2.95 | 2.90 | 2.80 | 2.40 | 2.82 |
| 1932 | 2.25 | 2.35 | 2.35 | 2.20 | 2.20 | 2.20 | 2.25 | 2.40 | 2.40 | 2.50 | 2.30 | 2.25 | 2.30 |
| 1933 | 2.25 | 2.10 | 2.00 | 1.95 | 1.90 | 2.15 | 2.30 | 2.25 | 2.30 | 2.25 | 2.20 | 2.20 | 2.15 |
| 1934 | 2.40 | 2.40 | 2.40 | 2.35 | 2.30 | 2.45 | 2.20 | 2.35 | 2.35 | 2.60 | 2.75 | 2.70 | 2.44 |
| 1935 | 2.85 | 2.70 | 2.70 | 2.80 | 2.70 | 2.70 | 2.70 | 2.80 | 2.75 | 2.80 | 3.00 | 3.00 | 2.79 |

Compiled from "Price Paid Massachusetts Farmers for Milk" by Roger F. Hale, and from records of the Division of Crop and Livestock Estimates, Bureau of Agricultural Economics.

According to the Federal Reserve Monthly Review, published November 1, which secured its employment data from the Massachusetts Department of Labor and Industries, the average August to September increase of employment in representative manufacturing establishments during the ten-year period 1925-1934 was 0.9 percent, and the average increase in payrolls was 1.6 percent. From August to September 1935 the increase in number of wage earners was 2.4 percent, and the increase in payrolls was 3.6 percent. In 63 cotton mills reporting, employment increased 3.0 percent and payrolls 2.4 percent, "due somewhat to greater production in certain mills in Fall River".

An article in the Boston Herald of November 19, 1935, relative to statistics issued by the New England Council, states that "Fall River, due to the reopening of cotton goods plants, showed a 45.1 percent gain in employment and 39.5 percent gain in total wages paid in September as contrasted with August".^{17/}

The Federal Reserve Monthly Review cites other business indicators as follows:

Retail sales, in Massachusetts, September 1935, compared with September 1934:

| | |
|--------------------------------------|-----|
| Number of stores reporting | 892 |
| Number of stores reporting increase | 514 |
| Number of stores reporting decrease | 331 |
| Number of stores reporting no change | 47 |

The total increase in dollar volume was 8.2 percent.

Building: The total value of new construction contracts awarded in New England in September 1935 was \$9,737,900 as compared with \$12,435,800 in September 1934, and the total value of contracts awarded during the first nine months of 1935 was 13.5 percent smaller than in the corresponding period a year earlier. There was an increase, however, in new residential building contracts awarded, the total value in September 1935 being \$3,014,700 and that in September 1934, \$2,734,800.

(2) Distribution of relief milk.

Milk is dispensed to persons on relief by the following procedure:^{18/} The Department of Public Welfare of Fall River gives tickets to the recipient and communicates the name and address of the latter to the secretary of the Fall River Milk Dealers' Association. The secretary then directs some member of the Association to deliver milk daily to the holder of the tickets. The milk route man collects the tickets and the dealer receives payment semi-monthly from the Department of Public Welfare, according to the number of tickets which he holds, at the rate of 10 cents per

^{17/} These percentages are cited also by the Federal Reserve Monthly Review.

^{18/} Report of Market Administrator, License No. 48.

quart.^{19/} This rate is three (3) cents under the regular retail price, and producers are paid one and one-half (1-1/2) cents per quart less than the regular Class I price for milk disposed of in this manner. Table 10 shows the number of families on relief, by months, April 1934--June 1935, the quantities of relief milk distributed in terms of quarts and pounds, and the prices paid by relief authorities for such milk. The number of families on relief in June 1935 was 3,491, compared with 2,003 in June 1934. In June 1935, 43,498 quarts of milk were distributed to relief clients, as compared to 19,733 quarts in June 1934. The largest numbers of families were on relief in September and October 1934 at the time of the cotton textile strike, when the numbers were 3,742 and 3,746, respectively. Likewise, the largest quantity of relief milk was distributed in September 1934, i.e., 63,864 quarts. The quantity distributed in October (47,068 quarts), however, was exceeded by the quantities distributed in March and May 1935; 48,580 and 50,505 quarts, respectively.

(3) Demand as indicated by reported sales of Class I milk.

As indicated by estimated daily sales of Class I milk,^{20/} demand has remained fairly constant during the period in which License No. 48 has been in effect. The lowest level reached during the period April 1, 1934--December 31, 1935, was 70,874 pounds per day during the delivery period December 1-15, 1934; the highest was 81,798 pounds per day during the period June 16-30, 1934. The average daily Class I sales of 74,478 pounds during the delivery period December 16-31, 1935, was above the daily average during December 16-31, 1934. The estimates during the summer months of 1935 do not run quite so high, however, as in 1934. (See Table 11.)

c. Supply conditions.

(1) Location and boundaries of the Fall River milk supply area.

The Fall River market draws its milk supply from eight towns in Bristol County, Massachusetts and from seven towns in southeastern Rhode Island, in Bristol and Newport Counties. (See Table 12 and Figure 1.) In total, they contain 352.4 square miles and extend out on an average about nine miles from Fall River. Approximately one-third of the area lies in Rhode Island, while two-thirds is in Massachusetts.

The Fall River market does not receive all the milk sold from these towns. Freetown producers, for example, send milk to Taunton and New Bedford, as well as to Fall River, while New Bedford sends one-fifth as much milk to Fall River as to the New Bedford market. The Fall River milk supply area is adjacent on the north to Taunton, Attleborough and Brockton with daily milk requirements of approximately 10,000, 7,000 and 30,000 quarts, respectively.^{21/} On the south and east, it is adjacent to the New

^{19/} April--August 1934, 9 cents per quart; after August 1934, 10 cents per qt.

^{20/} Estimates of Market Administrator, License No. 48.

^{21/} From "Sources of Milk Supply in 29 Secondary Markets in Massachusetts," by A. H. Lindsey, Massachusetts State College.

Table 10. Volume and price per quart of milk distributed to relief recipients, Fall River Marketing Area, by months April 1934 to June 1935, inclusive.

| Month and year | Number of families on relief | Amount paid for milk | Quarts | Pounds | Price per quart |
|----------------|------------------------------|----------------------|--------|---------|-----------------|
| | | <u>Dollars</u> | | | <u>Cents</u> |
| 1934 | | | | | |
| April | 1,969 | 2,148.30 | 23,870 | 51,321 | 9 |
| May | 2,049 | 3,467.52 | 38,528 | 82,835 | 9 |
| June | 2,003 | 1,775.97 | 19,733 | 42,426 | 9 |
| July | 2,189 | 2,465.82 | 27,398 | 58,906 | 9 |
| August | 2,334 | 2,580.48 | 28,672 | 61,645 | 9 |
| September | 3,742 | 6,386.38 | 63,864 | 137,308 | 10 |
| October | 3,746 | 4,706.80 | 47,068 | 101,196 | 10 |
| November | 2,406 | 2,489.90 | 24,899 | 53,533 | 10 |
| December | 2,422 | 4,475.80 | 44,758 | 96,230 | 10 |
| 1935 | | | | | |
| January | 3,154 | 1,561.00 | 15,610 | 33,562 | 10 |
| February | 2,906 | 3,086.30 | 30,863 | 66,355 | 10 |
| March | 3,024 | 4,858.00 | 48,580 | 104,447 | 10 |
| April | 3,322 | 4,384.80 | 43,848 | 94,273 | 10 |
| May | 3,442 | 5,050.50 | 50,505 | 108,586 | 10 |
| June | 3,491 | 4,349.80 | 43,498 | 93,521 | 10 |

Report of Market Administrator, License No. 48.

Bedford area, which requires about 32,000 quarts daily.^{22/} On the northwest lies Providence with a daily requirement of approximately 135,000 quarts.^{23/} The nearest of these cities is 10 miles, and the farthest, 20 miles from the Fall River Marketing Area. Milk prices paid producers, in the two of these nearby markets for which price histories are available (Providence and New Bedford), have been closely associated with the prices paid in the Fall River market. (See Table 13 and Figure 2.)

Given time to make contacts, most producers now sending their milk to Fall River could, if necessary, find an alternative whole milk outlet in another direction. Table 12 shows, in addition to the location of the milk shed, its area, population and the share of the total supply from each town. Due to the heavy production area to the south and southwest, and the less immediate competition for milk there, the Fall River market obtains a rather disproportionate amount of milk from those directions while supplies from the north and east are relatively limited.

2. Internal Characteristics of the Fall River Milk Supply Area.

(a) Types of farming in the Fall River milk shed.

^{22/} Ibid.

^{23/} Computed from the Federal Milk Market Administrator's reports, Providence market.

Table 11. Estimated daily Class I and II sales of milk, and percent of total sales in the Fall River, Massachusetts, Marketing Area, April 1934 - December 1935.

| Delivery period | Class I pounds | Class I percent of total | Class II pounds | Class II percent of total | Total pounds |
|-----------------|-------------------|--------------------------------|--------------------|---------------------------------|-----------------|
| <u>1934:</u> | | | | | |
| April 1-15 | 73,224 | 91.7 | 6,628 | 8.3 | 79,852 |
| " 16-30 | 76,732 | 94.3 | 4,638 | 5.7 | 81,370 |
| May 1-15 | 79,029 | 91.2 | 7,625 | 8.8 | 86,654 |
| " 16-31 | 81,360 | 90.1 | 8,939 | 9.9 | 90,299 |
| June 1-15 | 80,606 | 89.9 | 9,056 | 10.1 | 89,662 |
| " 16-30 | 81,798 | 93.8 | 5,407 | 6.2 | 87,205 |
| July 1-15 | 79,074 | 92.8 | 6,135 | 7.2 | 85,209 |
| " 16-31 | 80,868 | 92.5 | 6,557 | 7.5 | 87,425 |
| Aug. 1-15 | 81,759 | 92.4 | 6,725 | 7.6 | 88,484 |
| " 16-31 | 79,652 | 90.3 | 8,556 | 9.7 | 88,208 |
| Sept. 1-15 | 74,281 | 86.7 | 11,395 | 13.3 | 85,676 |
| " 16-30 | 72,058 | 86.5 | 11,246 | 13.5 | 83,304 |
| Oct. 1-15 | 71,820 | 85.7 | 11,984 | 14.3 | 83,804 |
| " 16-31 | 71,789 | 89.4 | 8,512 | 10.6 | 80,301 |
| Nov. 1-15 | 76,757 | 95.8 | 3,365 | 4.2 | 80,122 |
| " 16-30 | 73,926 | 92.7 | 5,822 | 7.3 | 79,748 |
| Dec. 1-15 | 70,874 | 92.3 | 5,912 | 7.7 | 76,786 |
| " 16-31 | 71,053 | 87.3 | 10,336 | 12.7 | 81,389 |
| <u>1935:</u> | | | | | |
| Jan. 1-15 | 72,366 | 87.4 | 10,433 | 12.6 | 82,799 |
| " 16-31 | 72,721 | 87.6 | 10,294 | 12.4 | 83,015 |
| Feb. 1-15 | 72,110 | 87.4 | 10,396 | 12.6 | 82,506 |
| " 16-28 | 71,464 | 85.7 | 11,924 | 14.3 | 83,388 |
| Mar. 1-15 | 73,457 | 86.7 | 11,268 | 13.3 | 84,725 |
| " 16-31 | 73,536 | 85.1 | 12,875 | 14.9 | 86,411 |
| April 1-15 | 76,129 | 87.0 | 11,376 | 13.0 | 87,505 |
| " 16-30 | 75,792 | 85.1 | 13,270 | 14.9 | 89,062 |
| May 1-15 | 74,589 | 80.6 | 17,953 | 19.4 | 92,542 |
| " 16-31 | 77,332 | 78.6 | 21,054 | 21.4 | 98,386 |
| June 1-15 | 74,446 | 76.7 | 22,615 | 23.3 | 97,061 |
| " 16-30 | 74,556 | 79.5 | 19,225 | 20.5 | 93,781 |
| July 1-15 | 75,863 | 82.8 | 15,759 | 17.2 | 91,622 |
| " 16-31 | 76,262 | 86.5 | 11,902 | 13.5 | 88,164 |
| Aug. 1-15 | 76,157 | 84.6 | 13,863 | 15.4 | 90,020 |
| " 16-31 | 76,556 | 87.1 | 11,338 | 12.9 | 87,894 |
| Sept. 1-15 | 71,399 | 82.4 | 15,250 | 17.6 | 86,649 |
| " 16-30 | 76,258 | 87.0 | 11,395 | 13.0 | 87,653 |
| Oct. 1-15 | 75,797 | 87.6 | 10,729 | 12.4 | 86,526 |
| " 16-31 | 76,628 | 91.4 | 7,210 | 8.6 | 83,838 |
| Nov. 1-15 | 76,345 | 93.1 | 5,658 | 6.9 | 82,003 |
| " 16-30 | 76,474 | 93.7 | 5,142 | 6.3 | 81,616 |
| Dec. 1-15 | 76,324 | 92.3 | 6,367 | 7.7 | 82,691 |
| " 16-31 | 74,478 | 88.8 | 9,394 | 11.2 | 83,872 |

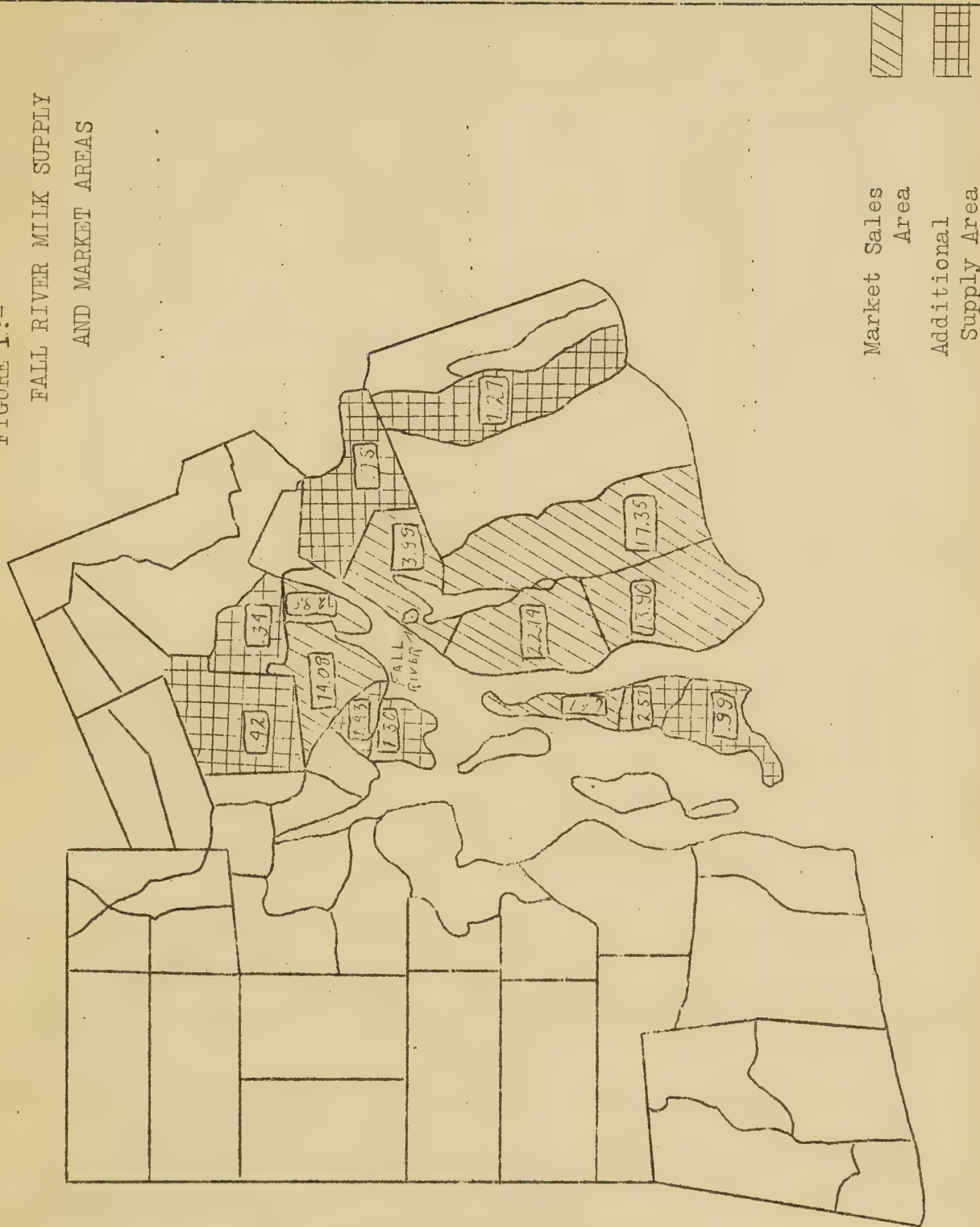
Table 12. Fall River, Massachusetts milk supply and market area, square miles, population and percent of supply received, by towns.

| Town and State | Square miles | Population | Population per square mile | Percent of population of marketing area | Percent of supply received from specified towns |
|--|--------------|------------|----------------------------|---|---|
| Dighton, Mass. | 21.8 | 3,147 | 144.4 | - | .34 |
| Rhoboth, " | 47.3 | 2,610 | 55.2 | - | .42 |
| Freetown, " | 34.6 | 1,656 | 47.9 | - | .78 |
| New Bedford, " | 19.0 | 112,597 | 5,926.2 | - | 1.27 |
| Newport, Rhode Is. | 7.9 | 27,612 | 3,495.2 | - | .99 |
| Bristol, " " | 9.7 | 11,953 | 1,232.3 | - | 1.30 |
| Warren, " " | 6.5 | 7,974 | 1,226.8 | - | 1.43 |
| Middletown, " " | 13.4 | 2,499 | 186.5 | - | 2.57 |
| Total supply area outside marketing area | 160.2 | 170,048 | 1,061.5 | - | 9.10 |
| Fall River, Mass. | 32.9 | 115,274 | 3,503.8 | 83.6 | 3.99 |
| Somerset, " | 7.1 | 5,398 | 760.3 | 3.9 | 12.85 |
| Swansea, " | 22.1 | 3,941 | 178.3 | 2.9 | 14.07 |
| Westport, ^{1/} " | 53.0 | 4,408 | 83.2 | 3.2 | 17.34 |
| Portsmouth, R.I. | 23.3 | 2,969 | 127.4 | 2.1 | 6.61 |
| Little Compton, "" | 22.5 | 1,382 | 61.4 | 1.0 | 13.90 |
| Tiverton, "" | 31.3 | 4,578 | 146.3 | 3.3 | 22.14 |
| Total marketing area | 192.2 | 137,950 | 717.7 | 100.0 | 90.90 |
| Total supply area | 352.4 | 307,998 | 874.0 | | 100.00 |

The area of towns in Massachusetts is taken from the Decennial Census of Massachusetts, 1915, table 11; in Rhode Island, from the State Census of Rhode Island, 1895, table XIX. Statistics on population are from the United States Census of Population, 1930. Data relative to the percent of total milk received, by towns, are from "Sources of Milk Supply in 29 Secondary Markets in Massachusetts," by A. H. Lindsey, Massachusetts State College, March, 1934.

^{1/} Only part of the town of Westport is in the Marketing Area, but it has not been possible here to show either the area or the population in only that part which is within the Marketing Area. Consequently, the figures given are for the entire town.

FIGURE 1:-
FALL RIVER MILK SUPPLY
AND MARKET AREAS



Note: Percentage figures indicate proportion of total supply furnished by each town.

Table 13. Prices paid producers for all milk. f.o.b. market, Fall River and New Bedford, Massachusetts, and Providence, Rhode Island, yearly averages 1922-35.

| Year | Fall River | Providence | New Bedford |
|------|------------|------------|------------------|
| 1922 | \$3.66 | \$3.57 | \$3.60 |
| 1923 | 4.00 | 3.88 | 4.00 |
| 1924 | 3.75 | 3.45 | 3.87 |
| 1925 | 3.84 | 3.74 | 3.87 |
| 1926 | 3.93 | 3.97 | 4.10 |
| 1927 | 3.93 | 3.95 | 4.19 |
| 1928 | 4.09 | 4.11 | 4.19 |
| 1929 | 4.17 | 4.15 | 4.19 |
| 1930 | 4.16 | 4.06 | 4.19 (11 months) |
| 1931 | 3.29 | 2.96 | |
| 1932 | 3.02 | 2.63 | |
| 1933 | 3.00 | 2.77 | |
| 1934 | 3.09 | 3.09 | |
| 1935 | 3.40 | 3.35 | |

Compiled from data supplied by the New England Milk Producers' Association

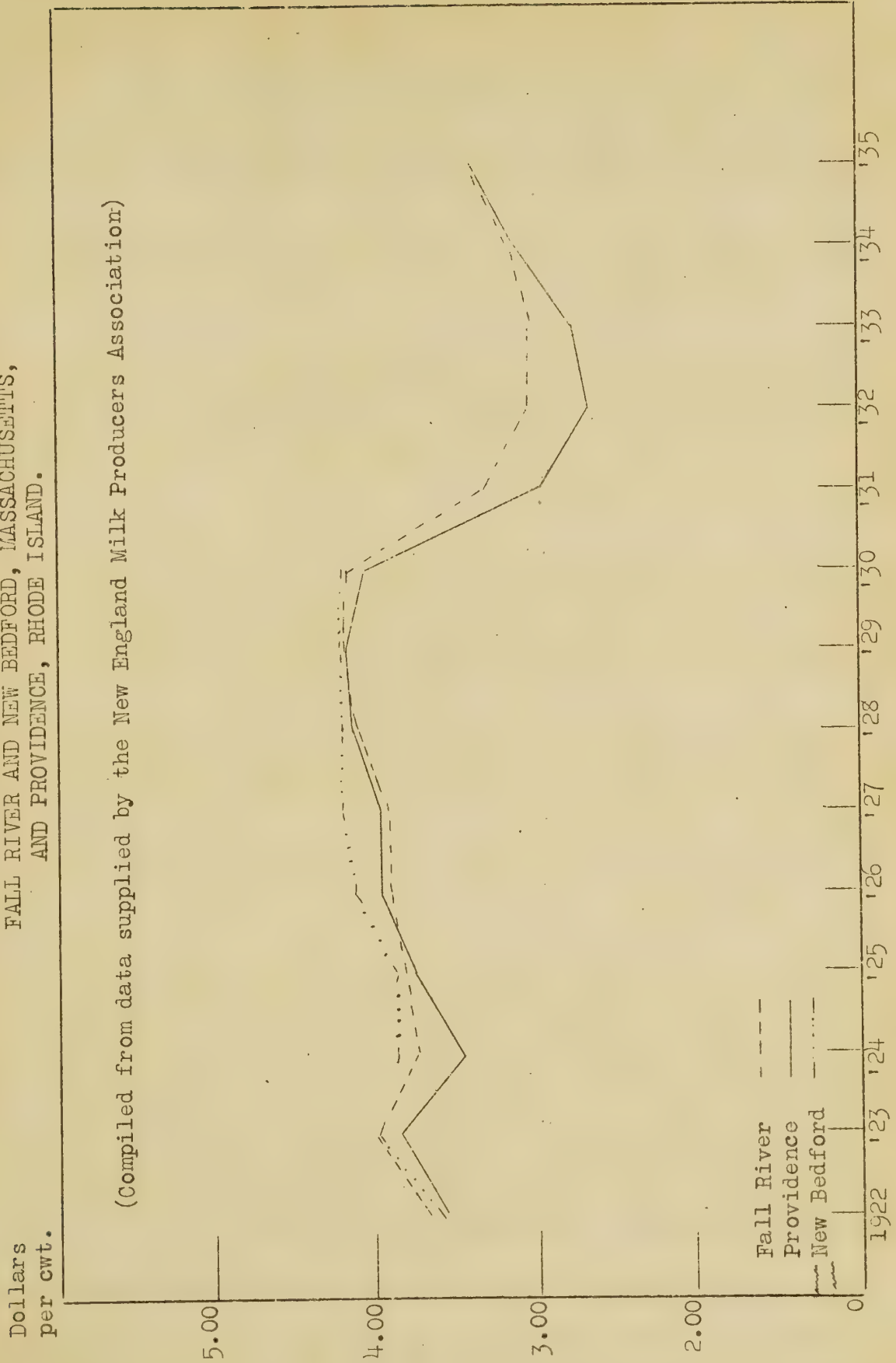
The type of farming study of the United States Census of Agriculture of 1930 classifies the area in the Fall River milk shed into four types or subtypes. Type number 512, which lies in the northwest sector of the Fall River supply area, is a dairy, poultry, truck, part-time farming and fruit area. In the north, type number 513-a is also a dairy area with some poultry, truck, part-time farming and fruit. Type area 513-b, east of Fall River, is a region of more concentrated dairy production, with some poultry and fruit production. To the south and southwest lies type of farming area 513-c, which is one of the most intensive dairy sections in New England.

The pasture land available in the Fall River supply area, although quite fertile, is insufficient for the herds in the area. Many of the dairy farms were originally used for market gardening. At present, the land is used almost exclusively for dairy production purposes, most farmers raising only crops to supply feed for the herds.

(b) Character of the dairy enterprise in the Fall River supply area.

Some idea of the character of the dairying enterprise should be evident from the fact that in 1930 there were 36.5 head of all cattle per square mile in Bristol County, Massachusetts, as compared with a State average of 25.8 percent, and that 72 percent of these cattle were milk cows as compared with 63 percent for the State. In Rhode Island, in Bristol County, there were 72 head of cattle per square mile in 1930, 62 percent of which were milk cows, and in Newport County there were 73 head of cattle per square mile, 63 percent of which were milk cows. Any percentage of

FIGURE 2:- PRICES PAID PRODUCERS FOR ALL MILK F.O.B. MARKET,
FALL RIVER AND NEW BEDFORD, MASSACHUSETTS,
AND PROVIDENCE, RHODE ISLAND.



milk cows to total cattle lower than 60 ordinarily will maintain cow population in a dairy area, but where this figure ranges to 65 percent or above, it is likely that the milk cow population must be maintained by some importation of cows. Evidently this is required in Bristol County, Massachusetts, although the shortage is not so evident in the two Rhode Island counties in the supply area. A negligible portion of the cows in these three counties was of beef or dual purpose breeding in 1929. (See Table 14.)

- (c) Average size of herd, total production, production per cow, and milk production per square mile in the Fall River milk supply area in 1929.

The average herd in Bristol County, Massachusetts, contained 8.1 milk cows in 1929. Herds in Bristol County, Rhode Island, contained 10.2 cows; and, in Newport County, 9.6 milk cows. The herds which supply the Fall River market with milk probably are considerably larger than these county averages indicate because of the inclusion of small family-size herds among those listed in the county averages.

Table 15 shows the total milk production by counties for the States of Massachusetts and Rhode Island in 1929 and the density of production per square mile. Bristol County, Massachusetts, shows the greatest density of production of any Massachusetts county, and Bristol and Newport Counties, Rhode Island, show the greatest density of production, excluding Connecticut from consideration, of any New England counties.

This high density is the result of a high proportion of land in farms, a high proportion of farms keeping milk cows, large-sized herds and high production per cow. Table 15 also shows the production per cow for Massachusetts and Rhode Island counties.

- (d) Trends in milk production in Massachusetts and Rhode Island since 1929.

While it is not possible to show what changes have occurred in the total volume of milk produced within the Fall River supply area, the total production in Rhode Island and Massachusetts gives some indication of recent trends affecting supplies in that market. The number of milk cows in Rhode Island has shown a slight rise since 1929. Production per cow declined from 6,400 pounds of milk per cow in 1929 to 6,050 pounds in 1934. Together, these shifts practically offset each other so that total production remained rather constant. In Massachusetts, however, there was a decided decline in total milk production, resulting largely from declining production per cow. Table 16 shows that production dropped from 746 million pounds in 1929 to 707 million pounds in 1934.

- (e) Utilization of milk produced in the Fall River supply area, 1929,

Farmers in the Fall River milk supply area marketed a very high percentage of their production as whole milk in 1929. (See Table 17.) Farmers in Bristol County, Rhode Island, sold 92.2 percent of their total production as whole milk, .9 percent as cream, and kept 6.9 percent on the farm. Farmers in Newport County, Rhode Island, marketed 92.7 percent of their total production as whole milk, .3 percent as farm butter, 1 percent as cream

Table 14. Percent of farms with over 40 percent of their income from dairying, acres per dairy type farm, number of cattle per square mile, percent cows milked in 1929 are of all cattle, and percent cows milked in 1929 of dual-purpose or beef breeding are of all cows milked, by counties for Massachusetts and Rhode Island.

| County and State | Percent of farms with over 40 percent of income from dairy | Acres per dairy type farm | Number of cattle per square mile | Percent cows milked in 1929 are of all cattle | Percent cows milked in 1929 of dual-purpose or beef breeding are of all cows milked |
|-----------------------|--|---------------------------|----------------------------------|---|---|
| <u>Massachusetts:</u> | | | | | |
| Barnstable | 12.6 | 68 | 3.86 | 67.5 | 7.5 |
| Berkshire | 42.4 | 176 | 25.13 | 53.1 | 4.0 |
| Bristol | 32.8 | 68 | 36.48 | 72.0 | 5.6 |
| Dukes | 41.8 | 113 | 6.18 | 57.8 | 4.7 |
| Essex | 29.2 | 81 | 28.15 | 74.4 | 5.9 |
| Franklin | 23.8 | 161 | 28.92 | 55.3 | 4.9 |
| Hampden | 25.4 | 121 | 20.10 | 58.7 | 4.5 |
| Hampshire | 25.5 | 136 | 33.16 | 57.0 | 3.4 |
| Middlesex | 28.6 | 78 | 29.31 | 71.8 | 5.3 |
| Nantucket | 69.6 | 149 | 9.76 | 69.9 | 2.0 |
| Norfolk | 29.3 | 73 | 20.80 | 72.9 | 2.7 |
| Plymouth | 22.6 | 63 | 14.22 | 69.0 | 4.0 |
| Suffolk | 7.4 | - | 4.07 | 54.0 | - |
| Worcester | 39.2 | 116 | 32.59 | 60.2 | 4.7 |
| State | 30.4 | 108 | 25.80 | 63.0 | 4.7 |
| <u>Rhode Island:</u> | | | | | |
| Bristol | 43.8 | 63 | 72.08 | 62.2 | .9 |
| Kent | 24.5 | 100 | 23.21 | 63.4 | 2.9 |
| Newport | 53.8 | 69 | 72.98 | 62.8 | 1.1 |
| Providence | 32.9 | 105 | 27.27 | 71.4 | 1.3 |
| Washington | 31.9 | 156 | 17.91 | 56.7 | 3.5 |
| State | 35.6 | 100 | 29.65 | 64.9 | 1.8 |

United States Census of Agriculture for 1930, Volume III, Part 1, County Table I and Volume II, Part 1, County Table IX.

Table 15. Average size of herd, total milk production per cow and production per square mile by counties in 1929 for Massachusetts and Rhode Island.

| County and State | Number of milk cows per farm reporting milk cows in 1929 | Milk production | Milk production per cow | Milk production per square mile |
|-----------------------|--|-----------------|-------------------------|---------------------------------|
| | | Pounds | Pounds | Pounds |
| <u>Massachusetts:</u> | | | | |
| Barnstable | 5.2 | 5,454,172 | 5,116 | 13,335.4 |
| Berkshire | 9.5 | 68,054,346 | 5,276 | 70,449.6 |
| Bristol | 8.1 | 93,696,837 | 6,293 | 165,250.2 |
| Dukes | 6.6 | 1,493,433 | 3,910 | 13,957.3 |
| Essex | 8.8 | 61,733,053 | 5,934 | 124,211.4 |
| Franklin | 5.7 | 55,577,586 | 4,982 | 79,738.3 |
| Hampden | 6.0 | 38,579,118 | 5,145 | 60,659.0 |
| Hampshire | 5.9 | 59,030,486 | 5,339 | 100,906.8 |
| Middlesex | 8.5 | 100,788,268 | 5,757 | 121,139.7 |
| Nantucket | 16.6 | 1,171,595 | 3,367 | 22,972.5 |
| Norfolk | 9.4 | 38,846,105 | 6,310 | 95,680.1 |
| Plymouth | 7.1 | 37,994,585 | 5,732 | 56,288.3 |
| Suffolk | 24.2 | 938,097 | 7,753 | 17,056.3 |
| Worcester | 7.9 | 171,261,845 | 5,611 | 110,065.5 |
| State | 7.6 | 734,619,525 | 5,623 | 91,382.0 |
| <u>Rhode Island:</u> | | | | |
| Bristol | 10.2 | 7,136,383 | 6,632.3 | 297,349.3 |
| Kent | 6.7 | 15,171,733 | 5,926.5 | 87,193.9 |
| Newport | 9.6 | 31,574,324 | 6,042.9 | 276,967.8 |
| Providence | 9.9 | 55,760,852 | 6,658.8 | 129,676.4 |
| Washington | 6.5 | 18,408,885 | 5,578.5 | 56,642.7 |
| State | 8.6 | 128,052,177 | 6,235.8 | 120,011.4 |

Table 16. Estimated number of cows milked, production per cow and total milk production in Massachusetts and Rhode Island, by years, 1929-1934.

| Year | Number of milk cows | | Production per cow | | Total milk production | |
|------|---------------------|------------------|--------------------|------------------|-----------------------|-----------------------|
| | Mass. | R. I. | Mass. | R. I. | Mass. | R. I. |
| | <u>Thousands</u> | <u>Thousands</u> | <u>Thousands</u> | <u>Thousands</u> | <u>Million pounds</u> | <u>Million pounds</u> |
| 1929 | 126 | 20 | 5,920 | 6,400 | 746 | 128 |
| 1930 | 125 | 21 | 5,990 | 6,350 | 749 | 133 |
| 1931 | 126 | 21 | 5,870 | 6,300 | 740 | 132 |
| 1932 | 126 | 21 | 5,710 | 6,300 | 719 | 132 |
| 1933 | 123 | 21 | 5,730 | 6,300 | 705 | 132 |
| 1934 | 128 | 21 | 5,525 | 6,050 | 707 | 127 |

United States Department of Agriculture, Bureau of Agricultural Economics, Division of Crop and Livestock Estimates.

and 6 percent was kept on the farm. In Bristol County, Massachusetts, producers sold 90 percent of their total production as whole milk, .1 percent as farm butter, .1 percent as butterfat in cream, .7 percent as cream, and kept 9.1 percent for use on the farm. These figures show that dairying is highly commercialized in the region near Fall River. Such cream as is available in the market area appears to be the result of the necessity of having a surplus to cover variations in milk sales.

- (f) Regions of surplus and deficit milk supply adjacent to or within the Fall River milk supply area.

In spite of the fact that Fall River lies in the heaviest producing region in the New England States, the supply of milk produced there is inadequate to meet the needs of local markets. Bristol County, Rhode Island, showed a net deficit of 3,939,000 pounds in 1931, while Newport County showed a surplus of 15,665,000 pounds. However, Bristol County, Massachusetts, in which Fall River lies, lacked 60,253,000 pounds of having sufficient milk for its own uses. (See Table 18.) Fall River draws a considerable portion of its supplies from the surplus areas in southern Rhode Island.

- (g) Feeding practices in the Fall River production area contributing to high costs.

The small agricultural area which supplies fluid milk to the Fall River market is a high cost, deficit production area. In a study of "The Milk Supply of Massachusetts," published by the Massachusetts Agricultural Experiment Station, May 1927,^{24/} a section is devoted to "Milk Production and Shipped-in Feed". In this study, it is pointed out that "the milk flow would be diminished if the supply of outside grain were stopped. Thus part

24/ McFall, R.J., The Milk Supply of Massachusetts, Massachusetts Agricultural Experiment Station, Bulletin No. 236, May 1927.

Table 17. Disposition of milk produced on farms in Massachusetts and Rhode Island, by counties, 1929 (expressed as percentages of total milk produced).

| County and State | Percentage milk sold as milk is of total milk production | Percentage milk sold as farm butter is of total milk production | Percentage milk sold as butter-fat in cream is of total milk production | Percentage milk sold as cream is of total milk production | Percentage milk used on farms is of total milk production |
|-----------------------|--|---|---|---|---|
| | Percent | Percent | Percent | Percent | Percent |
| <u>Massachusetts:</u> | | | | | |
| Barnstable | 80.0 | .6 | 2.3 | 1.7 | 15.4 |
| Berkshire | 78.8 | 5.3 | .6 | 1.9 | 13.4 |
| Bristol | 90.0 | .1 | .1 | .7 | 9.1 |
| Dukes | 75.2 | 2.0 | 2.3 | 4.4 | 16.1 |
| Essex | 91.4 | .2 | .2 | .4 | 7.8 |
| Franklin | 73.6 | 2.8 | 6.0 | 2.2 | 15.4 |
| Hampden | 80.5 | 3.1 | 3.9 | 1.3 | 11.2 |
| Hampshire | 81.5 | 1.1 | 1.2 | 1.0 | 15.2 |
| Middlesex | 91.7 | .3 | .4 | .8 | 6.8 |
| Nantucket | 85.5 | 1.2 | - | 7.8 | 5.5 |
| Norfolk | 91.7 | .2 | .2 | 1.9 | 6.0 |
| Plymouth | 88.4 | .3 | .3 | 1.3 | 9.7 |
| Suffolk | 98.1 | - | - | - | 1.9 |
| Worcester | 86.2 | 1.0 | .2 | 1.5 | 11.1 |
| State | 85.9 | 1.3 | 1.0 | 1.3 | 10.5 |
| <u>Rhode Island:</u> | | | | | |
| Bristol | 92.2 | - | - | .9 | 6.9 |
| Kent | 87.8 | .2 | - | .7 | 11.3 |
| Newport | 92.7 | .3 | - | 1.0 | 6.0 |
| Providence | 92.8 | .1 | .4 | .6 | 6.1 |
| Washington | 83.4 | 1.3 | .1 | 1.9 | 13.3 |
| State | 90.8 | .3 | .2 | .9 | 7.8 |

Compiled from the United States Census of Agriculture for 1930, Volume II, Part I, County Table IX.

Table 18. Estimated net in and out shipments of milk by counties in the area supplying the Fall River market, 1931.

| State and county | Milk shipped out of county | Milk shipped into the county |
|-----------------------|----------------------------|------------------------------|
| | <u>1,000 pounds</u> | <u>1,000 pounds</u> |
| <u>Massachusetts:</u> | 56,285 | 1,206,456 |
| Barnstable | | 7,910 |
| Berkshire | 7,501 | |
| Bristol | | 60,253 |
| Dukes | | 644 |
| Essex | | 153,381 |
| Franklin | 29,584 | |
| Hampden | | 109,762 |
| Hampshire | 19,200 | |
| Middlesex | | 317,029 |
| Nantucket | | 383 |
| Norfolk | | 84,609 |
| Plymouth | | 35,017 |
| Suffolk | | 390,305 |
| Worcester | | 47,163 |
| <u>Rhode Island:</u> | 21,463 | 181,410 |
| Bristol | | 3,939 |
| Kent | | 6,036 |
| Newport | 15,665 | |
| Providence | | 171,435 |
| Washington | 5,798 | |

Compiled from "Report on the Survey of Milk Marketing in the Northeastern States," p. 57, Farm Credit Administration, etc. July 1933.

of the local milk production is merely the final stage in a series of operations in food production, the earlier stages of which are conducted elsewhere." During the year 1923, the following quantities of feed were used per hundredweight of milk produced on farms studied, in five New England States:^{25/}

| <u>Feed</u> | <u>Maine</u> (Pounds) | <u>New Hampshire</u> (Pounds) | <u>Vermont</u> (Pounds) | <u>Massachusetts</u> (Pounds) | <u>Connecticut</u> (Pounds) |
|-------------|--------------------------|----------------------------------|----------------------------|----------------------------------|--------------------------------|
| Grain | 34.0 | 27.6 | 19.5 | 39.3 | 34.9 |
| Silage | 91.4 | 67.3 | 68.2 | 108.8 | 156.5 |
| Hay | 62.1 | 76.0 | 100.6 | 62.5 | 64.6 |

As a result of this variance in feeding practices and of varying availability of local supplies of feedstuffs, it is necessary for dairymen in certain sections to purchase large quantities of "shipped-in" feed at prices which contain a large transportation factor. According to these figures, the producers in Massachusetts fed more than twice as much grain per hundredweight of milk produced, as was fed by the producers in Vermont. Table 19 presents a comparison, in terms of "net thermal equivalent," ^{26/} of home grown and shipped-in feeds used by the dairymen whose feeding practices were studied in six New England States and in the New England section as a whole. In percentage terms, the producers in Massachusetts used 30.48 percent shipped-in feed and 69.52 percent home grown feed. The proportion of shipped-in feed used by the Massachusetts producers was exceeded only by that used by the Rhode Island producers, i.e., 34.06 percent. The producers in Vermont used only 14.45 percent shipped-in feed.

The evidence, presented in the above-mentioned study, that production costs tend to be higher in Massachusetts than in Vermont is corroborated by the results of a study of the costs of producing milk and cream made by the United States Tariff Commission in 1925-26.^{27/} Table 5 of the appendix to the report of said study contains data relative to the quantities of feed fed per year to dairy cattle in 37 areas in Northeastern and North Central United States and in 6 areas in Canada. Two areas in Massachusetts were studied, one centering at Brockton and one at Holyoke. The former; because of proximity to Fall River (30 miles) is regarded as especially significant in this connection. Dairymen in this section fed 2,662 pounds of mill feeds and oil meal per cow per year and only 12 pounds of farm-grown grain. In the Holyoke, Massachusetts, section, 2,052 pounds of mill feeds and oil meal were fed as compared to 64 pounds of farm-grown grain. The Maine-New Hampshire dairymen fed 1,474 pounds of purchased feeds and 68 pounds of farm-grown grain, while in northern Vermont, 1,207 pounds of purchased feeds were fed as compared with 153 pounds of farm-grown grain.^{28/}

^{25/} Ibid.

^{26/} A common denominator used by nutritional chemists for comparing the nutritive value of different feeds.

^{27/} U. S. Tariff Commission, Milk and Cream, Costs of Production, (Preliminary Statement) January 18, 1928. (Mimeographed.)

^{28/} See Studies in Vermont Dairy Farming VI, "The Position of Northern Vermont among Dairy Farming Regions," Vermont Agr. Exp. Sta. Bulletin 307, Nov. 1929, p.12. (Based on the U. S. Tariff Commission study cited in footnote 27.)

Table 19. Feed units per hundredweight of milk produced, distinguishing between home-grown and shipped-in feed for each State and all New England.

| State and origin of feed | Net Thermal Equivalent | | | | | Percentage of total feed units |
|--------------------------------|------------------------|--------|--------|-----------|--------|---|
| | Grain | Silage | Hay | Pasturage | Total | |
| | Therms | Therms | Therms | Therms | Therms | |
| Maine | | | | | | |
| Home-grown | 1.2 | 14.5 | 23.6 | 26.8 | 66.1 | 74.43 |
| Shipped-in | 22.7 | 0.0 | 0.0 | 0.0 | 22.7 | 25.57 |
| Total | 23.9 | 14.5 | 23.6 | 26.8 | 88.8 | 100.00 |
| New Hampshire | | | | | | |
| Home-grown | .4 | 10.7 | 28.9 | 23.5 | 63.5 | 76.77 |
| Shipped-in | 19.2 | 0.0 | 0.0 | 0.0 | 19.2 | 23.23 |
| Total | 19.6 | 10.7 | 28.9 | 23.5 | 82.7 | 100.00 |
| Vermont | | | | | | |
| Home-grown | .1 | 10.9 | 38.2 | 32.7 | 81.9 | 85.55 |
| Shipped-in | 13.9 | 0.0 | 0.0 | 0.0 | 13.9 | 14.45 |
| Total | 14.0 | 10.9 | 38.2 | 32.7 | 95.8 | 100.00 |
| Massachusetts | | | | | | |
| Home-grown | 0.0 | 17.3 | 22.6 | 27.8 | 67.7 | 69.52 |
| Shipped-in | 28.6 | 0.0 | 1.1 | 0.0 | 29.7 | 30.48 |
| Total | 28.6 | 17.3 | 23.7 | 27.8 | 97.4 | 100.00 |
| Connecticut | | | | | | |
| Home-grown | 0.0 | 21.7 | 23.9 | 31.7 | 77.3 | 74.77 |
| Shipped-in | 25.4 | 0.0 | .7 | 0.0 | 26.1 | 25.23 |
| Total | 25.4 | 21.7 | 24.6 | 31.7 | 103.4 | 100.00 |
| Rhode Island | | | | | | |
| Home-grown | 0.0 | 19.5 | 17.9 | 27.0 | 64.4 | 65.94 |
| Shipped-in | 27.0 | 0.0 | 6.3 | 0.0 | 33.3 | 34.06 |
| Total | 27.0 | 19.5 | 24.2 | 27.0 | 97.7 | 100.00 |
| New England | | | | | | |
| Home-grown | .3 | 15.0 | 28.6 | 29.1 | 73.0 | 76.96 |
| Shipped-in | 21.7 | 0.0 | 0.0 | 0.0 | 21.7 | 23.04 |
| Total | 22.0 | 15.0 | 28.6 | 29.1 | 94.7 | 100.00 |

McFall, R. J., The Milk Supply of Massachusetts, Massachusetts Agr. Exp. Sta. Bulletin No. 236, P. 133, May 1927.

Data from Statistical Division, New England Milk Producers' Association.

That a large proportion of total farm income on dairy farms in Massachusetts and Rhode Island is expended for feed is indicated by Census data for the year 1929. (See Table 20.) In Bristol County, Massachusetts, out of total income of \$4,602.59 per farm for farm products sold, exchanged or used, \$1,669.44 was expended for feed. In Bristol County, Rhode Island, \$5,493.29 represented the value per farm of farm products sold, exchanged or used, out of which sum \$2,068.34 was expended for feed. Out of \$3,942.40 income per farm in Newport County, Rhode Island, \$1,372.06 was expended for feed. It appears, then, that more than one-third of the value of all farm products sold, exchanged or used by farm families on dairy farms in these Counties was expended for feed.

(3) Producers' marketing organizations.

The number of producers selling to handlers in the Fall River market has remained fairly constant throughout the period of operation under License No. 48. 29/ In the delivery period December 16-31, 1935, 338 producers were selling to dealers as compared with 339 during the like period in 1934. (See Table 21.) During the period April 1934--June 1935, the monthly average number of producers delivering milk, who belonged to the Fall River Milk Producers' Association, was 292. These producers delivered during this 15-month period an average of 2,130,038 pounds of milk per month, or 235 pounds per producer per day, which quantity represented about 85.2 percent of the total milk reported to the Market Administrator. The average number of members of the New England Milk Producers' Association delivering milk monthly during the same period was 17. These producers delivered an average of 172,928 pounds of milk per month (6.9 percent of the total), or an average of 328 pounds per producer per day. 30/

Producers who were not members of any association numbered, on an average, only 34. The total pounds of milk delivered per month by this group averaged 197,227, and the average per producer per day was 187 pounds. Non-members delivered about 7.9 percent of the milk delivered by all producers.

The average daily deliveries of milk per delivery period by all producers selling to handlers varied between 221.1 and 279.3 pounds per producer during the period April 1, 1934--December 31, 1935. 31/ (See Table 21.) The highest volume, 279.3 pounds per producer per day, was reported during the delivery period May 16-31, 1935. The per producer per day average during the delivery period December 16-31, 1935, was 235.4 pounds as compared with 227.0 pounds during the corresponding period in 1934.

(4) Handlers in the Fall River Marketing Area.

During the period April 1, 1934--December 31, 1935, the number of handlers reporting to the Market Administrator varied between 38 and 44, the former number being reported during the 9 delivery periods between August 16

29/ Data from reports of Market Administrator, License No. 48.

30/ Four of these producers are claimed by both the New England Milk Producers' Association and the Fall River Milk Producers' Association.

31/ These averages include milk reported by producer-handlers.

Table 20. Farm income and expenditure for feed and labor on all farms and on farms of dairy type, by counties, in Massachusetts and Rhode Island, 1929.

| County and State | Value of farm products, per farm, sold, exchanged or used by farm family | | Expenditures for feed per farm | | Expenditures for labor per farm | |
|------------------|--|------------------|--------------------------------|------------------|---------------------------------|------------------|
| | All farms | Dairy type farms | All farms | Dairy type farms | All farms | Dairy type farms |
| | Dollars | Dollars | Dollars | Dollars | Dollars | Dollars |
| | | | | | | |
| Massachusetts: | | | | | | |
| Barnstable | 2,545.94 | 4,687.52 | 994.65 | 1,371.83 | 977.21 | 1,420.67 |
| Berkshire | 2,488.61 | 3,824.46 | 807.87 | 1,143.86 | 856.34 | 775.32 |
| Bristol | 3,159.89 | 4,602.59 | 1,158.83 | 1,669.44 | 1,068.98 | 1,117.62 |
| Dukes | 1,887.80 | 2,688.57 | 705.07 | 988.96 | 689.35 | 726.29 |
| Essex | 3,249.50 | 5,115.57 | 1,128.00 | 1,728.75 | 1,495.36 | 1,357.01 |
| Franklin | 2,317.86 | 3,422.86 | 518.58 | 1,031.84 | 484.08 | 573.95 |
| Hampden | 2,666.97 | 3,280.76 | 653.54 | 1,009.70 | 1,004.67 | 659.12 |
| Hampshire | 2,734.56 | 3,322.93 | 632.39 | 1,023.03 | 754.55 | 635.40 |
| Middlesex | 3,915.30 | 5,023.50 | 1,209.13 | 1,725.48 | 1,872.58 | 1,273.39 |
| Nantucket | 4,383.55 | 4,146.00 | 1,595.90 | 1,925.94 | 1,236.06 | 1,131.08 |
| Norfolk | 4,128.98 | 7,026.62 | 1,597.52 | 2,381.48 | 1,679.30 | 1,788.39 |
| Plymouth | 4,050.54 | 4,617.84 | 1,306.92 | 1,908.43 | 1,558.28 | 1,318.38 |
| Suffolk | 11,275.45 | - | 1,804.41 | - | 8,468.48 | - |
| Worcester | 2,698.22 | 3,766.14 | 883.86 | 1,245.80 | 833.34 | 857.85 |
| State | 3,060.85 | 4,231.81 | 955.49 | 1,420.01 | 1,133.88 | 985.39 |
| Rhode Island: | | | | | | |
| Bristol | 3,558.84 | 5,493.29 | 1,443.84 | 2,068.34 | 1,350.94 | 1,564.24 |
| Kent | 2,266.37 | 4,823.99 | 810.20 | 1,555.08 | 790.13 | 1,043.46 |
| Newport | 3,347.34 | 3,942.40 | 1,093.30 | 1,372.06 | 1,540.04 | 978.74 |
| Providence | 3,511.04 | 6,557.30 | 1,181.17 | 2,163.57 | 1,301.57 | 1,321.58 |
| Washington | 2,839.69 | 4,652.31 | 899.59 | 1,422.08 | 954.90 | 1,135.63 |
| State | 3,133.27 | 5,226.65 | 1,053.69 | 1,733.43 | 1,207.85 | 1,187.66 |

United States Census of Agriculture for 1930, Volume III, Part I, County Tables III and VIII.

Table 21. Fall River, Massachusetts.- Number of handlers, producers selling to such handlers, and average daily deliveries of milk per dairy selling to handlers, April 1-15, 1934 to December 1-16, 1935.

| Year and Month | Number of handlers | Producers selling to handlers | Average daily deliveries of milk per dairy selling to handlers |
|----------------------|-----------------------|-------------------------------------|--|
| | Number | Number | Pounds |
| <u>1934</u> | | | |
| April 1-15 | 43 | 355 | 221.1 |
| " 16-30 | 43 | 355 | 225.3 |
| May 1-15 | 44 | 355 | 243.4 |
| " 16-31 | 44 | 355 | 253.7 |
| June 1-15 | 43 | 352 | 250.7 |
| " 16-30 | 43 | 352 | 245.5 |
| July 1-15 | 43 | 351 | 242.1 |
| " 16-31 | 42 | 351 | 248.4 |
| Aug. 1-15 | 42 | 351 | 247.9 |
| " 16-31 | 42 | 351 | 248.4 |
| Sept. 1-15 | 42 | 349 | 244.0 |
| " 16-30 | 40 | 349 | 237.3 |
| Oct. 1-15 | 41 | 345 | 230.6 |
| " 16-31 | 41 | 343 | 226.3 |
| Nov. 1-15 | 41 | 339 | 223.0 |
| " 16-30 | 41 | 334 | 226.7 |
| Dec. 1-15 | 41 | 334 | 222.9 |
| " 16-31 | 41 | 339 | 227.0 |
| <u>1935</u> | | | |
| Jan. 1-15 | 40 | 337 | 233.1 |
| " 16-31 | 40 | 335 | 234.2 |
| Feb. 1-15 | 40 | 335 | 233.1 |
| " 16-28 | 40 | 335 | 235.5 |
| March 1-15 | 39 | 336 | 238.1 |
| " 16-31 | 39 | 335 | 244.1 |
| April 1-15 | 39 | 332 | 249.7 |
| " 16-30 | 39 | 333 | 253.7 |
| May 1-15 | 39 | 339 | 259.1 |
| " 16-31 | 40 | 336 | 279.3 |
| June 1-15 | 39 | 337 | 274.8 |
| " 16-30 | 38 | 335 | 266.6 |
| July 1-15 | 38 | 335 | 260.3 |
| " 16-31 | 39 | 336 | 249.8 |
| Aug. 1-15 | 39 | 334 | 255.8 |
| " 16-31 | 38 | 334 | 249.6 |
| Sept. 1-15 | 38 | 334 | 245.9 |
| " 16-30 | 38 | 335 | 248.1 |
| Oct. 1-15 | 38 | 337 | 243.6 |
| " 16-31 | 38 | 337 | 236.1 |
| Nov. 1-15 | 38 | 338 | 229.6 |
| " 16-30 | 38 | 338 | 228.8 |
| Dec. 1-15 | 38 | 338 | 231.9 |
| " 16-31 | 38 | 338 | 235.4 |

Average : 38.75 : 335.8 : 246.5

Compiled from reports of the Market Administrator, License No. 48

and December 31, 1935. 32/ Producer-handlers reporting to the Market Administrator, License No. 48, numbered from 1 to 8, the latter number during the 9 delivery periods between August 16 and December 31, 1935.

A number of the handlers deal in very small volumes. As of June 1935, there were 5 handlers purchasing from only 1 producer each, 5 purchasing from 2 producers each, and 4 purchasing from 3 producers each. Only 5 handlers were purchasing from more than 10 producers each, the largest securing his supply from 63 producers. 33/

The handlers are organized in the Fall River Milk Dealers' Association.

(5) Transportation of milk, Fall River Marketing Area.

Practically all hauling of milk from producers' farms to handlers' plants is done by truckers hired by the handlers. From April 1, 1934 to September 1, 1934, the following schedule of hauling charges was in effect: 34/

| | |
|--------------------------|----------------------------|
| Zone 1 - 1 to 3 miles | 15 cents per hundredweight |
| " 2 - over 3, to 8 miles | 23 " " " |
| " 3 - " 8, to 12 " | 35 " " " |
| " 4 - " 12 miles | 45 " " " |

An extra charge of 5 cents per hundredweight was made for "bad roads".

On September 1, 1934, hauling rates were reduced to the following schedule: 35/

| | | |
|--------|---|----------------------------|
| Zone 1 | - | 12 cents per hundredweight |
| " 2 | - | 20 " " " |
| " 3 | - | 30 " " " |
| " 4 | - | 40 " " " |

The allowance of an additional 5 cents per hundredweight for "bad roads" was retained.

(6) Sanitation regulations. 36/

The system of legal requirements and inspection as to equipment and methods under which the Fall River milk supply is produced and distributed results in a high quality of milk. The Fall River Health Department and the Milk Regulation Board of the Commonwealth of Massachusetts co-operate in insuring a high quality milk supply through a thorough system of inspection

32/ Reports of Market Administrator, License No. 48.

33/ Ibid.

34/ Report of Market Administrator, License No. 48.

35/ Ibid.

36/ Information secured from report of Market Administrator, License No. 48.

of farms and plants, the City Health Department inspecting farms located in Massachusetts, and the State authorities inspecting those located in Rhode Island. A score-card system of checking farm equipment and methods is used, farms subject to State inspection being scored annually, and those under city inspection being subject to inspection 4 times per year. 37/

In addition to such inspection as to equipment and methods, all cattle on farms supplying milk to the Fall River market must be examined regularly for evidence of tuberculosis by the veterinarian of the Fall River Board of Health. This inspection applies to cattle on farms wherever located, whether within or without the Commonwealth of Massachusetts, and is in addition to any Federal or State inspection to which such cattle may be subject.

On the basis of the above inspections, the producer is issued annually a "Milk Producer's Permit" without which no producer may sell milk for consumption as milk in Fall River. So-called "outside" cream, however, is subject to no such system of inspection.

Some specific standards adhered to are indicative of the results of the quality program which has been pursued in Fall River for a number of years. Massachusetts State law requires that milk contain not over 400,000 bacteria per c.c. before pasteurization nor over 40,000 per c.c. after pasteurization. The Fall River Board of Health requirement is not more than 25,000 bacteria per c.c. after pasteurization, and the same standard prevails under Rhode Island State law. Dealers selling in Fall River are subject to a pasteurization ordinance which requires that all milk be pasteurized and that plants be located in the city. While certain existing plants are outside the city limits, it is understood that any newly constructed plant will have to be located in the city.

As part of the procedure in securing a low bacteria count in the milk supply, cooling to 50 degrees F. is required immediately after milking. Consequently, 63 percent of the producers are now equipped with mechanical refrigeration. 38/

- (7) Production conditions of immediate importance in relation to prices provided by the Proposed Agreement and Order.

Table 21 indicates that, during the period April 1, 1934 - October 31, 1935, there was some tendency for the number of producers supplying the market to decrease, while there was some increase in deliveries per producer per day. Production per producer per day, during the delivery period April 1-15, 1934, was estimated to be 223.7 pounds, whereas in the period April 1-15, 1935, it was estimated at 258.1 pounds, an increase of 15.4 percent. However, the actual increase in total volume of sales was less than 10 percent. Moreover, the daily average of estimated total sales during the second delivery period in October 1935 was only 4.4 percent above the daily average for the corresponding delivery period in 1934, and the quantity of milk reported in Class II, during this delivery period in 1935, was less than in 1934. While Class

37/ In practice, the frequency of inspection may vary considerably from the 4-times-per-year standard.

38/ Information supplied by Market Administrator, License No. 48.

II milk during the summer months of 1935 was practically sufficient to supply the fluid cream demands of consumers, considerable quantities of "outside" cream were brought into the market largely for the purpose of manufacturing ice cream. 39/

The decline of milk deliveries in November 1935 to a level only slightly above that in November 1934 may be taken to indicate that producers in the Fall River production area have found no undue encouragement to expand production under the prices which have been effective since September 1, 1934, pursuant to License No. 48, in spite of the fact that feedstuff prices during the fall of 1935 were somewhat lower than they were a year earlier. (See table 22.)

d. Conclusions relative to minimum prices to producers.

(1) The Class I price.

A Class I price of \$3.40 per hundredweight has been effective in the Fall River market since September 1, 1934, pursuant to the provisions of License No. 48. During that period, the number of producers supplying the market has remained about constant, and the total volume of production has increased moderately (comparing data for September--December 1935 with those for September--December 1934). Consumption of fluid milk, as indicated from Market Administrator's estimates based on volume of Class I sales, appears to have been higher in December 1935 than in December 1934. The outlook for Class I sales appears better, in view of employment and economic conditions generally, than it has at any time since License No. 48 became effective, April 1, 1934.

The proposed Class I price of \$3.35 per hundredweight appears to be justified in view of the supply conditions which prevail in the Fall River production area. Increased demand in the market should permit the maintenance of returns to producers on a level comparable to that maintained under License No. 48.

(2) The Class II price.

The proposed Class II price formula is based directly on price of butterfat in cream of bottling quality in the Boston market. The volume of Class II milk in relation to total volume (shown in Table 11) indicates that producers in the Fall River area have been producing only a moderate quantity of excess over fluid milk requirements. This supply ordinarily does not fulfill all the requirements of dealers in the market for cream for distribution as fluid cream. The proposed price, which represents a small increase over prices paid under the terms of License No. 48, therefore, appears reasonable. 40/

39/ Report of Market Administrator, License No. 48.

40/ The proposed Class II price formula would result in an increase of 11-1/2 cents over the Class II price paid under the terms of License No. 48.

Table 22. Boston, Massachusetts - Average feedstuff prices per ton, bagged, in carlots, March 1934 - October 1935.

| Year and Month | :Stand- :ard :spring :wheat :bran | :Stand- :ard :spring :wheat :mid- :dlings | :Lin- :seed :meal :(34%) | :Cotton- :seed :meal :(41%) | :Cotton- :seed :meal :(36%) | :Glu- :ten :feed | :Glu- :ten :meal | :White :hominy :feed | :Average :eight :feed- :stuffs |
|----------------|---|--|-----------------------------------|--------------------------------------|--------------------------------------|------------------------|------------------------|----------------------------|---|
| | :Dollars | :Dollars | :Dollars | :Dollars | :Dollars | :Dollars | :Dollars | :Dollars | :Dollars |
| 1934 | | | | | | | | | |
| March | : 27.75 | : 26.50 | : 38.40 | : 33.65 | : 32.00 | : 26.85 | : 35.60 | : 26.30 | : 30.88 |
| April | : 26.70 | : 26.65 | : 37.70 | : 32.15 | : 30.40 | : 26.60 | : 35.85 | : 24.30 | : 30.04 |
| May | : 25.00 | : 24.25 | : 35.65 | : 30.90 | : 29.50 | : 24.35 | : 34.30 | : 22.30 | : 28.28 |
| June | : 28.80 | : 29.45 | : 37.40 | : 32.70 | : 31.30 | : 25.95 | : 34.65 | : 25.40 | : 30.71 |
| July | : 27.50 | : 28.75 | : 38.30 | : 34.70 | : 33.55 | : 25.85 | : 34.50 | : 25.55 | : 31.09 |
| August | : 29.95 | : 31.05 | : 45.50 | : 39.95 | : 35.80 | : 30.80 | : 40.55 | : 32.15 | : 35.47 |
| Sept. | : 28.90 | : 29.55 | : 44.00 | : 41.15 | : 38.55 | : 33.30 | : 43.30 | : 34.25 | : 36.63 |
| Oct. | : 27.85 | : 28.00 | : 42.10 | : 42.15 | : 40.15 | : 33.80 | : 43.80 | : 31.70 | : 36.19 |
| Nov. | : 29.50 | : 30.05 | : 43.45 | : 45.45 | : 41.75 | : 35.30 | : 45.30 | : 36.25 | : 38.13 |
| Dec. | : 32.40 | : 33.50 | : 44.80 | : 44.30 | : 42.55 | : 39.80 | : 47.90 | : 39.90 | : 40.64 |
| 1935 | | | | | | | | | |
| Jan. | : 31.95 | : 32.45 | : 44.25 | : 43.30 | : 41.45 | : 39.40 | : 46.65 | : 37.50 | : 39.62 |
| Feb. | : 31.25 | : 31.15 | : 40.40 | : 42.15 | : 40.15 | : 37.65 | : 43.40 | : 35.25 | : 37.68 |
| March | : 29.90 | : 29.65 | : 34.25 | : 39.65 | : 37.50 | : 34.50 | : 39.50 | : 32.25 | : 34.65 |
| April | : 30.95 | : 31.15 | : 35.60 | : 38.67 | : 36.52 | : 30.45 | : 36.25 | : 31.85 | : 33.93 |
| May | : 31.63 | : 32.63 | : 35.75 | : 39.06 | : 36.50 | : 31.25 | : 34.25 | : 33.13 | : 34.28 |
| June | : 27.81 | : 29.50 | : 35.50 | : 37.13 | : 34.81 | : 30.25 | : 33.75 | : 32.00 | : 32.59 |
| July | : 24.40 | : 26.40 | : 34.20 | : 33.85 | : 31.75 | : 28.25 | : 32.12 | : 29.83 | : 30.10 |
| Aug. | : 23.63 | : 25.19 | : 29.57 ^{1/2} | : 30.06 | : 28.56 | : 27.00 | : 29.45 | : 29.88 | : 27.92 |
| Sept. | : 22.00 | : 22.81 | : 24.95 | : 28.63 | : 27.37 | : 25.75 | : 28.25 | : 29.94 | : 26.21 |
| Oct. | : 22.95 | : 23.65 | : 26.38 | : 32.30 | : 31.25 | : 27.80 | : 31.40 | : 30.80 | : 28.32 |
| Nov. | : 22.69 | : 22.81 | : 27.00 ^{1/2} | : 31.06 | : 29.81 | : 29.13 | : 33.88 | : 27.75 | : 28.01 |

Compiled from "Crops and Markets" published by Bureau of Agricultural Economics.

^{1/2} Interpolated.

PART VI

Other Provisions of the Proposed Marketing
Agreement and Proposed Order for the Fall
River Marketing Area.

A. Terms defined by the proposed marketing agreement and proposed order.

"Person" means any individual, partnership, corporation, association, or any other business unit. In the milk industry, practically all types of business organization are to be found. Hence, in order that all handlers subject to regulation in a milk market be regulated, it is necessary that all possible types of business organization be specified and the proposed marketing agreement and proposed order be made applicable thereto. If this were not done some persons would be exempt from the provisions of the proposed marketing agreement and proposed order, even though the character of their business were such that they were subject to regulation. This would operate to cause the regulatory aspects of the proposed marketing agreement and proposed order to be discriminatory between different firms, and it is to obviate this inequitable result that "person" is so defined as to cover all types of business organization.

"Producer" means any person, irrespective of whether such person is also a handler, who produces milk in conformity with the health requirements applicable for milk to be sold for consumption as milk in the Fall River Marketing Area. Milk which does not meet these requirements cannot legally be sold as milk in the Fall River Marketing Area, hence the handlers of such milk should not be subject to any proposed marketing agreement or proposed order relating to such milk. But all milk which meets the health requirements is in actual or potential competition with all other such milk, and handlers of such milk must be subject to any proposed marketing agreement and proposed order for such to be effective in regulating the handling of such milk.

"Handler" means any person, irrespective of whether such person is a producer or an association of producers, wherever located or operating, who engages in such handling of milk, which is sold as milk or cream in the marketing area, as is in the current of interstate or foreign commerce, or which directly burdens, obstructs, or affects interstate or foreign commerce in milk and its products.

One of the major objectives of this proposed marketing agreement and proposed order is to place all handlers on a comparable basis with respect to the purchase price they are required to pay for milk sold in the several use classes. In order to do this, all competitive factors in the market must be controlled and directed so that the market operates efficiently and losses engendered by unrestrained, unfair competition are eliminated. In order that this major purpose may be accomplished, all persons involved in the handling of milk and its products in interstate commerce, or so as to burden, obstruct, or affect interstate commerce, must be subject to the proposed marketing agreement and proposed order. All types of business setups and organizations are found. Hence, the definition of a handler must be broad enough to include all those persons who are in competition with each other so that no provision of the

proposed marketing agreement and proposed order be discriminating in effect with respect to different firms or persons.

B. Market administrator and provisions relating thereto.

Selection, removal, and bond. In order that the Secretary can be assured that the administration of the proposed marketing agreement and proposed order is being carried out without any bias in favor of or against any group in the Fall River Marketing Area, it is necessary that he appoint the market administrator. This procedure was followed in all Federal milk licenses, due to the fact that it has proven more feasible than other types of administrative organization. The person selected needs to be one of wide experience and one with complete understanding of the proposed marketing agreement and proposed order. In order further to insure unbiased administration of the proposed marketing agreement and proposed order, it is necessary that the market administrator, selected by the Secretary, be subject to removal by the Secretary and only by the Secretary. For further assurance to all concerned of the faithful and honest performance by the market administrator of his duties, the market administrator is required to execute and deliver to the Secretary a bond in such amount as the Secretary may determine, with surety thereon satisfactory to the Secretary.

Compensation. The Secretary, who selects the market administrator, should also be the one to determine a reasonable compensation for the market administrator he selects. The market administrator being necessary for the proper administration of the proposed marketing agreement and proposed order, his salary is considered an expense of administration.

Duties. In order that there shall be proper administration of the proposed marketing agreement and proposed order, the market administrator must:

1. Keep such books and records as will clearly reflect the financial transactions provided for in the proposed marketing agreement and proposed order. In order for the Secretary to be assured, and to assure producers and handlers, of proper administration of the proposed marketing agreement and proposed order, the books and records of the market administrator must be subject to his examination at any and all times. Only by being so assured can the Secretary know definitely that the proposed marketing agreement and proposed order are effectuating the policy of Congress as stated in the Agricultural Adjustment Act.

2. In order for the Secretary to be informed, furnish such information and verified reports as the Secretary may request.

3. In order to assure that his duties, for which the Secretary is responsible, are being properly carried out by his employees, obtain a bond for each employee who handles funds entrusted to the market administrator under the provisions of the proposed marketing agreement and proposed order. Most of the money handled in the administrator's office belongs to handlers or producers, and the bond would cover possible losses to them. This insurance being necessary to the proper administration of the proposed marketing agreement and proposed order, the expense of such bond should be a part of the expense of administration.

4. Publicly disclose, except as otherwise directed by the Secretary, the name of any person who has not:

(a) Furnished security pursuant to article XI of the proposed marketing agreement and proposed order. A producer, if his payments are to be insured by the provisions of article XI of the proposed marketing agreement and proposed order, is entitled to know, and must know, if the handler of his milk has not met the terms of said article. If this information is not disclosed to the producer, he might assume that the handler of his milk has filed security and that his payments are being insured and it is the market administrator's duty to clarify the situation. In this way only can the market administrator fulfill the responsibility he has of assuring producers that the payments for their milk are insured. It is equitable, also, to disclose to handlers the names of those handlers who are not supplying their producers the same protection as those handlers who have filed security.

(b) Made reports pursuant to article V of the proposed marketing agreement and proposed order. These reports are the only way in which the market administrator can determine, in a reasonable length of time, sales made by each handler in each class, etc. These reports are necessary in order that prices to producers be computed by the market administrator and the purpose of the proposed marketing agreement and proposed order be effectuated. If the handler pays his producers without filing these reports, other handlers and also the producers should be informed that that handler had not filed reports and that the market administrator could not determine if the handler had paid the correct price for his milk. If the producers are not so informed, they might assume that they had been paid the correct price. The market administrator must make it known that he had not verified the price paid, and, therefore, was not responsible for its correctness.

(c) Made payments pursuant to article VIII of the proposed marketing agreement and proposed order. The market administrator obtains information to compute the price that shall be paid by each handler and also obtains information as to what price was paid. With no notice to the contrary, a producer might assume that the price he received was the one to which he was entitled, when, in fact, it might be different from what the market administrator had computed as being correct. Because the producer might make such an incorrect assumption, the market administrator must notify such producer that the prices paid by the handler were not those computed by the market administrator. All handlers will be in the same competitive position only if they pay the price as computed by the administrator. The other handlers in the market, in order to be on equal competitive terms, must know the names of those competitors who have not paid the same price for milk (subject only to adjustments) as they have.

C. Inter-handler sales. (Section 2 of article III of the proposed marketing agreement and proposed order.)

Article III, section 2, 41/provides that milk sold by a handler to
4/ For discussion of the classification provided in the proposed marketing agreement and proposed order, see part V.

another handler submits satisfactory proof to the market administrator that such milk was sold, used, or distributed by the purchasing handler other than as Class I, in which case such milk shall be classified as Class II. It is one of the fundamental objectives of the proposed marketing agreement and proposed order that all handlers shall pay uniform prices for their milk according to the use to which it is put.

The routes of milk from producer to consumer are so intricate and varied that, as a practical necessity, the sale of milk must be classified at some focal point in the routes. In this way only can the market administrator be sure that some handlers are not purchasing milk at Class II prices and using it as Class I milk. Provision is also made that milk sold by a handler to another handler for uses other than Class I be accounted for at the Class II price, and thus no handler pays the Class I price for milk which is used for Class II purposes.

D. Sales outside the Fall River Marketing Area. (Section 3 of article IV of the proposed marketing agreement and proposed order.)

Section 3 of article IV provides that for Class I milk sold outside the marketing area the price charged shall be such price as the market administrator has determined is being paid by handlers in the market for milk of equivalent use. There is an adjustment allowed for transportation from the plant where such milk is received from producers to the plant where the milk is loaded on wholesale and retail routes.

Some handlers who purchase milk from producers, as defined in the proposed marketing agreement and proposed order, sell milk not only in the marketing area but also in markets outside the marketing area. The proposed marketing agreement and proposed order is designed to regulate and set prices to be paid for all milk purchased from producers by handlers who handle milk in the marketing area. But, because most of the handlers in the markets outside the marketing area are not subject to the proposed marketing agreement and proposed order, the Class I price specified in it might put those handlers at a disadvantage (or an advantage) with their competitors operating in those markets with respect to the prices paid for Class I milk. Thus, it would be inequitable to apply the Class I price as stated in the proposed marketing agreement and proposed order to such sales of milk if that procedure would create such a situation. Nor can the price be left open to the discretion of the handler, for that price applied to some milk purchased from producers who are supplying the Fall River Marketing Area and so affects the prices paid to them. The only logical procedure is for the market administrator to ascertain what prices other handlers operating in those outside markets are paying for their Class I milk and to charge handlers subject to the proposed marketing agreement and proposed order the same price.

E. Equalization of fluid milk sales among producers.

The use plan of payment for milk puts all handlers in the market on an equitable competitive basis, and equalization of fluid milk sales is intended to do the same thing for all producers. Equalization of fluid milk sales is simply an extension of a plan that has been employed by each handler and each cooperative creamery. If a creamery sold 75 percent of its milk as whole milk and the remainder as cream, it did not pay 75 percent of its producers the fluid milk price for all their milk and the remaining 25 percent the cream price for

all their milk. Such a method obviously would have been inequitable. Instead, each producer was paid the whole milk price for 75 percent of his production and the cream price for the remaining 25 percent. Under the proposed marketing agreement and proposed order the fluid milk sales of the whole market are distributed among all producers in the milk shed in exactly the same way as though they were all members of a cooperative association which equalized its fluid milk sales among its members.

The lack of any plan for an equitable distribution of fluid milk sales among all producers has been one of the principal causes of unsatisfactory conditions in the Fall River Marketing Area during past years, for it has led to destructive competition among producers. Under normal conditions in the Eastern markets, whole milk prices average approximately twice as high as the prices paid for milk reported for use as cream. However, the milk used as cream is of the same quality as the milk used for fluid milk and can at any time be sold as whole milk in competition with it. A handler's ability to pay his producers a favorable composite price, as compared with the price of competitors, has depended largely upon his not having so great a volume of surplus sales (in this case, cream) as his competitors. If, by cutting prices, a producer succeeded in selling a large percentage of his milk as fluid milk, the composite price received would be higher than that of another producer who received the full market price but carried a larger percentage of the surplus. Thus, it was that a handler could cut the price of fluid milk in the city and still pay a composite price in the country, as high or even higher than that of the competitors who did not cut prices.

The actual operation of the equalization plan is simply a means of distributing to all producers similarly circumstanced the value of the fluid milk sales in the market by all handlers. With a 40 percent surplus in a market, each producer should get surplus prices on 40 percent of his deliveries. The Class I and Class II sales are not distributed equally among handlers. One handler may have no Class I sales, yet his producers are entitled to Class I price for 60 percent of their deliveries. But another handler may sell 100 percent of his producer's milk as Class I and his producers, if they are to carry the same amount of surplus as other producers, should get Class I price for only 60 percent of their deliveries. The first handler, who has no Class I sales, is enabled to pay his producers the Class I price for 60 percent of their deliveries by receiving from the equalization pool enough money to pay producers the difference between the Class II and Class I prices for 60 percent of the milk received. The second handler, who sells as Class I 100 percent of the milk received from producers, pays into the equalization pool the difference between the Class I and Class II prices on 40 percent of the milk received. If a handler happened to sell exactly 60 percent of the milk as fluid milk; he would pay producers directly for 60 percent of the milk at Class I prices, and for 40 percent at Class II, rather than paying them partly through the equalization pool.

The whole plan works exactly as if all handlers paid into the pool the volume of their Class I milk times the Class I price plus the volume of their Class II milk times the Class II price, whereupon the total sum would be distributed equitably among producers according to their deliveries. The market administrator's office acts merely as a clearing house for transactions. Thus, there remains room for any gains through superior quality or differences in efficiency of any individual handler, because any gain from operations after the milk had passed the receiving room door is retained by the handler and not shared by the rest of the market.

F. Computation, accounts and payments.

Article V of the proposed marketing agreement and proposed order sets forth three types of reports which handlers are required to submit and provides for the verification of these reports. The necessity for all these reports and for their verification becomes apparent with the realization of the nature of a milk market and practical operating problems which arise in making effective the class prices in the payments to all producers of uniform prices which reflect the utilization of milk by all handlers.

Section I requires handlers to submit reports on or before the fifth day after the end of each delivery period, showing, in such detail and form as the market administrator discovers to best fit the particular conditions, the information as to all milk or cream received by handlers and the utilization of such milk. With this information before him, the market administrator is able to determine for each handler the classification of the milk, the total payment to be made to producers therefor, and, after combining the total payments of all handlers, the uniform price which will distribute such total amount of money to all producers who delivered the milk to all handlers.

Section 2 provides for other reports with respect to producers delivering milk to a handler. These reports enable the market administrator to secure needed information with respect to producers after a handler has newly become a party to the agreement or subject to the order, or to request information not already in his hands, which is needed for full knowledge in order to effectuate and to determine the effects of the order in relation to the policy of the Act. The second report provided for under section 2 requires that each handler report to the market administrator upon first receiving milk from any producer who has not previously shipped milk to that handler, in order that the market administrator may keep his records up to date with respect to the producers delivering to each handler and to the coming into the market of producers who did not market milk regularly for thirty days prior to the effective date of the marketing agreement and order.

Section 3 provides for the regular reporting by handlers of their payments to producers for each delivery period in the form of a copy of the handler's producer payroll. Such a report expedites the routine checking of compliance with the marketing agreement and order and provides in an economical way the information necessary for the market administrator to maintain adequate producer records.

Section 4 provides that each handler shall permit the market administrator to verify the information contained in all reports. The importance of routine verification of all reports is readily understandable in view of the intricate and detailed transactions which are inherent in the milk business. Where errors both willful and accidental may so readily creep in and affect the returns to producers, successful operation of a marketing agreement and order will depend to a large degree upon the extent to which the market administrator assures himself of the correctness of the figures supplied by him in the reports and of the correctness of the sampling, weighing, and testing for butterfat of the milk which is delivered by producers. Such routine verification is thus extremely necessary for the effectuation of the provisions of the proposed marketing agreement and proposed order.

The provisions of article VI of the proposed marketing agreement and proposed order relate to handlers who are also producers. Section 1 prescribes the method by which the market administrator is to include in the pool computations the milk purchased by such handlers from other producers. The method prescribed is designed to establish a sound basis of determining the proportion of such producer-handler's total purchases from producers, which is to be paid for at the Class I price and the proportion which is to be paid for at the Class II price. This is done by excluding, first, the milk purchased in each class from other handlers, second a quantity of the remaining Class I sales of said producer-handler up to but not exceeding 95 percent of the milk produced and sold by him, and third, from his remaining Class II milk the balance of the milk produced and sold by him. The Class I and Class II milk which still remains will be included in the computations and will determine the amount which said producer-handler is required to pay for the milk which he purchases from producers.

Article VII of the proposed marketing agreement and proposed order is purely administrative in nature but necessary in order to set forth definitely the procedure by which the market administrator is to translate the class prices into uniform prices to all producers, with the adjustment to apportion equitably among producers the total value of milk for each delivery period according to production during a representative period of time.

Section 1 of this article provides for the computation of the total value by classes of all the milk purchased by any handler to determine his total obligation to producers for milk purchased.

Section 2 provides for the computing of the payments per hundred-weight, uniform, with stated adjustments, to all producers delivering to handlers, which will distribute the total value of milk received from producers by all handlers. The market administrator is required to notify all handlers and publish the uniform prices in effect for any delivery period on or before the 10th day after the end of such delivery period. The market administrator is thus allowed five days from the time of receiving reports of handlers for the necessary computations. The announcement of the price on this date allows a period of five days after receiving notice of the price before payment is required to be made to producers as a reasonable time for the clerical work necessary on the part of handlers in preparing checks and statements for distribution to producers. The series of computations is as follows:

1. Combine into one total the obligations computed for all handlers who are not in arrears as to any payments for the previous delivery period. Thus, is made up the total market pool or the total amount of money to be distributed by means of the uniform prices. If a handler should fail to pay to the market administrator that part of his total obligation which is to be paid to producers by way of the market administrator, the paying out of the pool will be reduced by that amount. If a handler has so failed in one delivery period, it is reasonable to expect that he may repeat his failure in the next. Experience in operating market pools under licenses has shown that handlers will tend to make their reports and then fail to make the payments, making necessary a further guide to the make-up of the pool than that of having a report in hand. Such a procedure, prescribed for the market administrator, in no way relieves the handler in his violation of the order, penalties for which are provided in the Agricultural Adjustment Act, as amended.

2. The payment to certain producers for their milk at the Class II price being prescribed; it is necessary to subtract from the total pool the amount of money which is prescribed to be paid out in these cases.

3. There is now left in the pool the net amount of money to be divided over all the milk which was delivered by producers not in excess of the bases. This sum is divided by the remaining delivered base milk, the result being the blended price per hundredweight for base milk.

4. There is a contingency, however, that not all of the handlers will make the portion of the payment to producers through the market administrator which is prescribed in article VIII. To cover such a contingency the market administrator is authorized to deduct from the rate per hundredweight an amount between 4 and 5 cents. This deduction from the blended price is not ultimately a deduction at all, but a deferring of the full payment until the money is sure to be in hand.

5. Paragraph 5 of the computations is a companion to paragraph 4 and to section 3 in providing for the distribution of all money in hand for producers up to the next preceding delivery period but one. By this means all of the collections for which the 4--5 cents was set aside are distributed each delivery period (one delivery period intervening) as the collections are made. It is more important to consider these three provisions in the light of the practical operation of the plan contained than to consider them in the light only of possible willful violations of the proposed marketing agreement and proposed order. Inevitably some reports will be late, some payments will fail to reach the market administrator on time, and errors will be made in both reports and payments. These three provisions give the market administrator a method by which to meet the practical problems which will arise in connection with the pool and still preserve practical equity in the distribution of money as among producers. The blended price announced by the market administrator, therefore, represents the pooled utilization of milk for the delivery period less 4--5 cents, plus whatever hitherto uncollected money has come into the market administrator's hands for previous delivery periods.

Article VIII of the proposed marketing agreement and proposed order provides that the minimum class prices shall be paid by handlers for each delivery period not later than the 15th day following the delivery period in the form of uniform prices to all producers, subject to specified adjustments which are authorized by the Agricultural Adjustment Act. The adjustment which most radically affects the returns of any producer is that adjustment depending upon deliveries of milk of a producer during a representative period of time which gives rise to the base-rating plan.

Paragraph 1, of section 1, therefore, provides that each producer shall be paid, for milk delivered not in excess of his base, the blended price subject to differentials on account of butterfat content. Paragraph 2 prescribes that each producer shall be paid the Class II price for that quantity of milk delivered by him in excess of his base. These paragraphs, therefore, provide for one of the adjustments applicable to a uniform price under the terms of the Act, namely: adjustment as among producers on the basis of their production

of milk during a representative period of time. A literally uniform price would be a straight blend of the entire classification value of the milk delivered by all producers to handlers. By means of the computations already discussed and the payment of the Class II price for excess milk, producers thus receive an amount over such a uniform price for that milk represented by their bases and an amount less than such a uniform price for the milk delivered in excess of base.

Paragraph 3 provides for the payment to producers who did not regularly sell milk within the marketing area or to a handler for a period of thirty days prior to the effective date of the proposed marketing agreement and proposed order at the Class II price for all the milk delivered during the period from the first delivery of milk until the end of two full calendar months thereafter. Such a provision authorized by the Act is based upon the characteristics of a milk market and of the necessary preparation which the dairyman must undertake to fit him for supplying the milk market with regular quantities of acceptable milk. The provision serves as a measure of protection to the dairyman who might be induced to make such preparation by a handler, later to be cast adrift by the handler when his purpose has been served, and further as a period of reasonable apprenticeship during which the dairyman may demonstrate his ability to meet the obligations inherent in supplying a milk market and thus be in position to secure real benefit from the regulation of handlers.

Paragraph 4 provides for the completion of the payment by each handler of the full classification value, but no more, of the milk received, as the handler made use of it, by paying to or receiving from the market administrator the difference between his payments direct to producers and the classification value of his milk. Thus, when all of the payments set forth in article VIII have been made, each handler has paid the minimum class prices uniformly with all other handlers, and producers have received uniform prices for milk delivered subject to the specified adjustments which translate a mathematically uniform price into practically uniform returns in accordance with the situation of the producer.

Section 3 provides for use, in paying producers, of a butterfat differential per hundredweight of milk for compensation as between producers who deliver milk of identical characteristics except for a difference in butterfat content. This differential is equal to the value of butterfat in cream of bottling quality in the Boston market. Since the class prices and the computed blended price are all on the basis of milk containing 3.7 percent butterfat content, when the handler has made his payments to producers, using the butterfat differential for each producer, he will have paid the total cost of all his purchases of milk at the 3.7 percent butterfat basis corrected to the actual average butterfat test of all his purchases by the amounts he deducts or adds in making payment to the individual producer.

G. Base rating.

According to the base-rating provision of article VII, the daily basic figure of a producer would be determined as follows: Up to and including January 31, 1937, a producer's daily basic figure would equal his average delivery per day during the calendar year 1935. For each twelve-month period beginning February 1 of each year after 1936, a producer's daily basic figure would equal his average delivery per day during the consecutive quarter, of

the next preceding calendar year, during which his average delivery is lowest of the four consecutive quarters of such year, or, at the option of such producer, eighty-five (85) percent of his average delivery per day throughout such year.

Paragraph 3 of section 1 of article VIII provides that new producers shall receive the Class II price for all their milk until the end of two full calendar months after first beginning to deliver milk. In order to compute a daily basic figure for such producers, a percentage of the average delivery per day during this period is taken, which percentage is determined by the relationship of the total deliveries of all producers not in excess of their bases during such period to the total deliveries of all producers. Producer-handlers, who sell bulk milk to other handlers, may, at their request, be based in a manner similar to new producers, using the average delivery per day during the six delivery periods immediately preceding such request.

Heretofore, the discussion has shown that all milk in the market is pooled, and priced to handlers in accordance with the form in which it is sold by them; and the economic basis for such pooling and pricing of milk has been pointed out in some detail. The next step in the marketing plan is the proration to producers of the proceeds of sales to handlers.

The proration plan that has been proposed and that has been incorporated in the proposed marketing agreement and proposed order is the type of plan commonly known as the "base-rating" or "base-surplus" plan. The problem involved is primarily that of dividing up the fluid milk market so that each producer shares equitably therein. It has been pointed out ^{42/} that in most markets fluid milk sales vary on a seasonal basis much less than production. Hence, during the season of lowest production, milk production within most milk supply areas is more nearly equivalent to fluid milk sales than during the season of flush production, when production is usually considerably in excess of fluid milk sales. On the other hand, producers vary markedly from each other with respect to the seasonality of their production. Many producers produce practically a constant volume of milk throughout the year, and hence their production conforms quite closely on a seasonal basis to the seasonal requirements of the fluid milk trade. Other producers produce a volume of milk that varies markedly from season to season, and hence their production does not conform closely on a seasonal basis to the seasonal requirements of the fluid milk trade. Thus, the plan of making each producer's base equal to his production during the short season of production is an equitable method of prorating the fluid milk market among producers. Producers are at liberty to increase their production during the flush season if they so desire, but for this seasonal surplus milk they receive surplus milk prices. The base-rating plan does not in itself limit or in any way restrain the producer in his production operations. He may increase or decrease his production as he sees fit. Under the base-rating plan, however, many producers find it to their advantage to produce a more even volume of milk from season to season rather than a volume that fluctuates widely from season to season. Some producers even out their seasonal production curves by shifting the freshening period of their cows, others feed relatively more grain than formerly during the short season. Still others increase their production during the base period (the season of short production) by increasing the number of cows on their farms, but do not materially change the seasonality of their production.

^{42/} Gaumnitz, E. W., and Reed, O. M., The Price Structure for Milk, Technical Paper No. 1, Dairy Section, Agricultural Adjustment Administration, United States Department of Agriculture.

That the base-rating plan is a commonly accepted market mechanism is evidenced by the large number of milk markets wherein the proceeds of sales to handlers are prorated to producers through the base-rating plan. On the basis of available information, it appears that the base-rating plan was started in Baltimore, Maryland, in 1918. Since that time, the base-rating plan has been instituted in a large number of important milk markets and has come to be recognized as an equitable method of prorating to producers the proceeds of sales to handlers. (See Table 23.) Table 24 shows the number of markets operating under the base-rating plan, by years, 1918 to 1934. The use of this plan of prorating to producers the proceeds of sales to handlers spread slowly, and by 1929 ten markets were operating under the plan. By 1933, the number of markets operating under the plan had increased to 27, and in 1934 34 markets were operating under the plan. The development of the base-rating plan has not been limited to any one section of the country.

According to the figures given in Table 23, markets in 17 States were operating under the plan. The States included, among others, such widely separated States as Massachusetts, California, Georgia, Oklahoma, and Michigan.

Prior to the effectuation of License No. 48, Fall River Sales Area, April 1, 1934, most distributors operating in the market were paying producers delivering to them according to the base-rating plan. There was, however, no general system of basing applicable to the entire market. Most dealers paid producers according to individual dealer pools, although a few small distributors purchased milk on a flat price basis. ^{43/} The establishment of bases in the market on a market-wide plan was accomplished by the terms of License No. 48, by which bases were allocated to producers according to their average shipments during the entire year of 1933 or during the months of August, September, October, and November, 1933, depending upon which average was the higher. It was further provided that, if a producer's average daily shipments for any three consecutive months were less than seventy percent of his base, he thereby received a new base equal to such average daily shipments. On September 1, 1934, this provision was amended changing "seventy percent" to "eighty-five percent". Certain producers, therefore, whose average daily deliveries have fallen below these percentage-of-base requirements, have had their bases adjusted downward.

The effect of the base-rating procedure provided by the proposed marketing agreement and proposed order would be a small reduction of present bases. This will tend to bring total allotted bases more nearly in line with total Class I sales. Then, until February 1, 1937, the only change which would take place in the total allotted bases would occur through the operation of the rules affecting bases of new producers and of producer-handlers, and affecting the moving of herds. After January 31, 1937, each producer would be allotted a base according to his deliveries during the quarter of the calendar year 1936 in which his deliveries are lowest. The producer would have the further option of being based according to 85 percent of his average delivery per day throughout the year. Thus, a producer may increase his base by increasing his deliveries in each quarter above the quantity of his existing base. Moreover, a producer whose daily deliveries during a quarter, whether by accident or intent,

^{43/} Report of Market Administrator, License No. 48.

Table 23. Milk markets operating with base-surplus plans 1/ as a part of the market structure, and date of institution of base-surplus plan on these markets, as of February 1, 1935.

| Market | State | Effective date of license | Year base- surplus plan was established (Approximate) |
|------------------------|-----------------|------------------------------|--|
| Philadelphia <u>2/</u> | Pennsylvania | Aug. 25, 1933 | 1919 |
| Chicago | Illinois | Feb. 5, 1934 | 1929 |
| Des Moines | Iowa | Feb. 14, 1934 | 1930 <u>3/</u> |
| Omaha-Council Bluffs | Nebraska-Iowa | Feb. 23, 1934 | Feb. 23, 1934 <u>4/</u> |
| Evansville | Indiana | Feb. 26, 1934 | 1932 |
| St. Louis | Missouri | Mar. 2, 1934 | 1930 <u>5/</u> |
| Boston | Massachusetts | Mar. 16, 1934 | 1930 <u>6/</u> |
| Lincoln | Nebraska | Mar. 17, 1934 | 1934 |
| Wichita | Kansas | Mar. 17, 1934 | Mar. 17, 1934 <u>7/</u> |
| Greater Kansas City | Missouri-Kansas | Mar. 17, 1934 | 1931 |
| Detroit | Michigan | Apr. 1, 1934 | 1923 <u>8/</u> |
| Newport | Rhode Island | Apr. 1, 1934 | 1923 |
| Providence | Rhode Island | " " | 1931 |
| New Bedford | Massachusetts | " " | 1931 |
| Fall River | " | " " | 1931 |
| Richmond | Virginia | May 1, 1934 | 1930 |
| Leavenworth | Kansas | May 16, 1934 | May 16, 1934 |
| Quad Cities | Iowa-Illinois | June 1, 1934 | July 1933 <u>9/</u> |
| Louisville | Kentucky | June 1, 1934 | 1929 <u>10/</u> |
| Los Angeles | California | " " | Feb. 1926 <u>11/</u> |
| Ann Arbor | Michigan | July 1, 1934 | 1923 <u>12/</u> |
| Alameda County | California | " " | 1930 |
| Battle Creek | Michigan | " " | Sept. 1933 |
| Bay City | " | " " | May 3, 1934 |
| Flint | " | " " | May 3, 1934 |
| Grand Rapids | " | " " | 1923 |
| Kalamazoo | " | " " | 1933 |
| Lansing | " | " " | 1930 <u>13/</u> |
| Muskegon | " | " " | 1930 |
| Port Huron | " | " " | July 1, 1934 <u>14/</u> |
| Saginaw | " | " " | 1927 |
| Baltimore | Maryland | Aug. 1, 1934 | 1918 |
| Savannah | Georgia | Aug. 16, 1934 | 1929 |
| Tulsa | Oklahoma | Aug. 21, 1934 | Nov. 11, 1934 <u>15/</u> |
| San Francisco | California | Oct. 2, 1934 | 1930 |
| Southern Illinois | Illinois | Nov. 1, 1934 | 1932 |
| Atlanta | Georgia | Dec. 1, 1934 | 1932 <u>16/</u> |
| San Diego | California | Feb. 1, 1935 | 1932 |

Compiled in most cases from transcripts of hearing for proposed marketing agreement for milk.

(continued)

- 1/ Sponsored in every case by a cooperative association of producers in the market.
- 2/ Operating under the "old" license policy.
- 3/ Base-surplus plan dropped from license December 5, 1934.
- 4/ Apparently no base-surplus plan prior to the license.
- 5/ Base-surplus plan discontinued under license as of November 16, 1934.
- 6/ There had been in effect for several years another plan prior to the present one.
- 7/ No base-surplus plan prior to license.
- 8/ Horner, J. L., Michigan State College, Special Bulletin No. 170, page 31.
- 9/ Abandoned in March 1934. Added to license September 1, 1934.
- 10/ Introduced about 1929 but discontinued in fall of 1930. Reestablished in later years.
- 11/ Source: U. S. D. A. Technical Bulletin No. 179, Cooperative Marketing of Fluid Milk, by Hutzler Metzger.
- 12/ Abandoned after several years. Reestablished in 1930.
- 13/ Operated only temporarily. Effected again in June 1934.
- 14/ The base-surplus plan had been used over a small part of the market for several years previously.
- 15/ Established as a license feature November 5, 1934.
- 16/ Two early attempts failed. Reestablished in February 1934.

Table 24. Number of milk markets wherein base-surplus plans was instituted during the year, and cumulative total, 1918 - 1934, inclusive.

| Year | Number of markets where base-surplus plan was started during the year | Cumulative total |
|------|---|------------------|
| 1918 | 1 | 1 |
| 1919 | 1 | 2 |
| 1920 | | 2 |
| 1921 | | 2 |
| 1922 | | 2 |
| 1923 | 3 | 5 |
| 1924 | | 5 |
| 1925 | | 5 |
| 1926 | 1 | 6 |
| 1927 | 1 | 7 |
| 1928 | | 7 |
| 1929 | 3 | 10 |
| 1930 | 8 | 18 |
| 1931 | 2 | 20 |
| 1932 | 4 | 24 |
| 1933 | 3 | 27 |
| 1934 | 7 | 34 |

Table 23, The data are incomplete in that no information is available covering all milk markets. The data given in the above table are taken from transcripts of hearings on milk licenses, and four markets operating under a base-surplus plan were excluded due to lack of information with respect to the date the plan was instituted.

drop below 85 percent of his average daily delivery during the year may establish a daily basic figure equal to 85 percent of his average daily delivery during the year. Thus, the base-rating provisions of the proposed agreement and proposed order permit a producer to increase, decrease, or retain his existing base by regulating or altering the volume of his deliveries at such times in the year as may suit his particular purpose.

The same rules would apply in each subsequent year beginning February 1, using the immediately preceding calendar year as the period for determination of bases.

The method provided for assigning bases to new producers is equitable, in that such producers, by planning their deliveries during the period until the end of two full calendar months after making the first delivery, may largely determine their own bases. A percentage of the daily average of deliveries by such a producer during this period, which is determined by the relationship between the total deliveries of all producers not in excess of their bases and the total deliveries during this period, gives the new producer a base rating which is equitable in comparison with that of other producers. The same may be said with respect to a producer-handler who requests to be allotted a base with respect to milk which he produces and sells in bulk to other handlers. The procedure provided will tend to regularize such dealings and will give producer-handlers the status of producers with respect to this portion of their business.

H. Deductions for marketing services. (Article IX of the proposed marketing agreement and proposed order.)

The Agricultural Adjustment Act, as amended, states that the Secretary of Agriculture may provide for marketing services as follows: (section 8c, (5) (E))

"Providing (i) except as to producers for whom such services are being rendered by a cooperative marketing association qualified as provided in paragraph (F) of this subsection (5), for market information to producers and for the verification of weights, sampling, and testing of milk purchased from producers, and for making appropriate deductions therefor from payments to producers"

Table 25. Total allotted bases, deliveries not in excess of bases, total deliveries of milk, and Class I sales in Fall River market by months for 1935.

| Year and month | Total allotted bases | Total deliveries not in excess of bases | Total deliveries of milk | Total Class I Sales | Percent Class I sales were of total allotted bases |
|----------------|----------------------|---|--------------------------|---------------------|--|
| | <u>Pounds</u> | <u>Pounds</u> | <u>Pounds</u> | <u>Pounds</u> | <u>Percent</u> |
| 1935 | | | | | |
| January | 2,724,604 | 2,367,404 | 2,406,417 | 2,106,142 | 77.30 |
| February | 2,453,644 | 2,139,960 | 2,145,206 | 1,857,387 | 75.70 |
| March | 2,705,336 | 2,414,360 | 2,484,027 | 2,132,324 | 78.82 |
| April | 2,612,831 | 2,405,473 | 2,507,859 | 2,091,423 | 80.04 |
| May | 2,709,324 | 2,575,722 | 2,791,692 | 2,108,858 | 77.84 |
| June | 2,623,031 | 2,508,310 | 2,728,928 | 2,070,190 | 78.92 |
| July | 2,703,358 | 2,475,673 | 2,565,911 | 2,105,765 | 77.89 |
| August | 2,720,425 | 2,487,550 | 2,598,769 | 2,163,063 | 79.51 |
| September | 2,648,330 | 2,381,985 | 2,473,729 | 1,986,611 | 75.01 |
| October | 2,696,101 | 2,419,418 | 2,504,520 | 2,099,615 | 77.88 |
| November | 2,562,738 | 2,278,791 | 2,324,424 | 2,014,277 | 78.60 |
| December | 2,616,514 | 2,376,230 | 2,448,852 | 2,039,075 | 77.93 |

Compiled from reports of the Market Administrator, License No. 48.

The types of services to be provided are specifically set forth, namely, checking of weights, sampling, and testing of milk, and market information. The former has a direct bearing upon the size of payments received by producers and, in turn, the stability of the market structure; the latter provides for the dissemination of such information to producers as will aid them in a better marketing of their products.

Article IX of the proposed marketing agreement and proposed order provides for market services to producers. In section (1) provision is made for a deduction of four (4) cents per hundredweight from the payments made to producers, such monies to be expended by the market administrator for market information and the verification of weights, sampling, and tests of milk. Similarly, section (2) provides that, if a cooperative marketing association is found to be qualified under the requirements of paragraph F, section 8c (5) of the Act, and is properly rendering the services to producers enumerated in article IX, section (1) of the proposed marketing agreement and proposed order, then the monies deducted by handlers from the members of such association shall be paid over to that association.

It is declared to be the policy of Congress, as stated in the Agricultural Adjustment Act, to recognize and encourage producer cooperatives. There is no restriction in the proposed marketing agreement and proposed order which would operate to the disadvantage of, or tend to supplant, their work. Rather, such services are encouraged by reason of a recognition that the cooperatives, due to a close relationship with their members, probably are in a better position to render these services to their members than is the market administrator.

Experiences of the cooperatives have demonstrated that the rendering of marketing services to their members is a desirable feature in the proper functioning of the market structure. Producers generally do not have available facilities to determine accurately the weight of their milk. Neither are they in a position to test precisely its fat content. Yet, without verification of the weights and tests as determined by handlers, producers often question the accuracy of the prices paid them. Marketing services in the nature of check-weighing and testing are thus rendered because the producers themselves desire such services.

It may appear that the expenses incurred in the verification of weights and tests are more properly chargeable to administration than to marketing service. The distinction is one of degree. Undoubtedly, spot checking of the purchases of milk of individual handlers by the market administrator would suffice in verifying weights and tests, and, in turn, the accuracy of price computations. Yet the producers, as stated heretofore, desire more than this. Their primary concern is that of ascertaining, not the general accuracy of the weights and tests made by the handler to whom they deliver milk, but the exact weights and tests of their own deliveries.

The presentation of marketing information to producers has become a necessary adjunct to an intricate marketing process. With this information, producers are better enabled to adjust their production and marketing to current market conditions. The United States Department of Agriculture regularly furnishes information to producers in the form of crop and livestock reports, outlook statements, etc. This service is maintained only because producers recognize this as indispensable.

The dissemination of current local market information, such as the price aspects of the market, local supply and demand conditions, etc., by the market administrator serves an identical purpose.

In order to estimate the amount of the deduction which will be needed to cover the costs of rendering the services set forth in section 1 of article IX, it has been assumed that the volume of milk delivered by producers during the calendar year 1936 will equal that delivered during the calendar year 1935. The expenditures for marketing services under

License No. 48 totalled \$11,981.53 for the year ending December 31, 1935. 44/ This amount, divided by total receipts of milk during the year results in an average cost per hundredweight of approximately 4 cents.

I. Expense of administration. (Article X of the proposed marketing agreement and proposed order.)

The market administrator must necessarily incur many expenses in his operations: he must maintain a personnel sufficient to (a) compute periodically the prices to be paid by handlers to producers, and determine the adjustments from those prices, (b) record and audit the sales reports of handlers, and (c) provide for contact work with handlers and other parties in the market.

Table 25 shows the cost incurred in the administration of License No. 48 during the period January 1, 1935--December 31, 1935. The average cost per hundredweight of milk pooled was \$.02109.

: Article X of the proposed marketing agreement and proposed order for the Fall River Marketing Area provides that each handler shall pay to the market administrator a sum not exceeding three (3) cents per hundredweight, the monies so obtained being used to cover the cost of administration of the marketing agreement and order. The exact amount per hundredweight is to be determined by the market administrator. In view of the experience gained in the administration of License No. 48, it appears that the maximum charge for meeting costs of administration, three (3) cents per hundredweight as specified in article X of the proposed marketing agreement and proposed order, is reasonable.

The Agricultural Adjustment Act, as amended, section 10b (2) stipulates that "each order issued by the Secretary under this title shall provide that each handler subject thereto shall pay . . . such handler's pro rata share (as approved by the Secretary) of such expenses as the Secretary may find will necessarily be incurred by such authority or agency, during any period specified by him, for the maintenance and functioning of such authority or agency, other than expenses incurred in receiving, handling, holding, or disposing of any quantity of a commodity

44/ Report of the Market Administrator, License No. 48. This amount includes services rendered both for member and non-member producers by the Fall River Milk Producers' Association and the New England Milk Producers' Association. The marketing service deduction for non-members was paid to the associations by the Market Administrator.

Table 26. Expenditures from the administrative fund
under License No. 48, Fall River Sales
Area, January 1, 1935--December 31, 1935.

| Expense Classification | : | Amount |
|---|---|-------------------|
| | : | <u>Dollars</u> |
| Office salaries | : | 5,037.68 |
| General expense | : | 925.45 |
| Travel expense | : | 359.43 |
| | : | <u> </u> |
| Total | : | <u>6,322.56</u> |
| Average cost per hundredweight of milk pooled | : | .02109 |

Compiled from reports of the Market Administrator, License No. 48

received, handled, held, or disposed of by such authority or agency for the benefit or account of persons other than handlers subject to such orders. The pro rata share of the expenses payable by a cooperative association of producers shall be computed on the basis of the quantity of the agricultural commodity or product thereof covered by such order which is distributed, processed, or shipped by such cooperative association of producers . . ."

The expense of administration is thus required by law to be collected from handlers. This provision of the proposed marketing agreement and proposed order is so worded, however, that, if the funds on hand are sufficient to cover expenses, the market administrator may waive the payments from handlers as to any delivery period. The handlers are thus assured that the amounts assessed from them may be adjusted to requirements, and, since periodic audits are made of the records of the market administrator, that the monies are properly handled.

J. Assurance of, and security for, payment to producers.
(Article XI of the proposed marketing agreement and proposed order.)

The Agricultural Adjustment Act, as amended, specifies in section 8c (5) (E) (ii) that provision may be made "for the assurance of, and the security for, the payment by handlers for milk purchased."

No provision is made for any one type of security to be furnished to the market administrator. Thus, one handler may elect to furnish a surety bond; another may choose to deposit cash; while others may post collateral security. The only criteria provided in the proposed marketing agreement and proposed order are that (a) the security is acceptable to the market administrator, and (b) the amount (or liquidation value) is not less than one-third of the value of milk purchased by such handler during three consecutive delivery periods.

The need of security for payment to producers arises from the method of payment employed by the industry. Producers deliver milk daily throughout the full delivery period (the customary delivery period for the Fall River Marketing Area is half of one month and is so provided in the proposed marketing agreement and proposed order) without receiving payment for any of those deliveries until some later date. The time of payment is specified as fifteen days or less after the end of the delivery period. The posting of security by handlers, therefore, is a reasonable assurance to producers that the monies owed them from their sales on credit will be forthcoming--delayed as they are--on a time schedule program in accordance with the terms of the proposed marketing agreement and proposed order.

The segregation of funds to be used in liquidating current obligations is not a usual business practice, and it has been observed that, in general, the amount of working capital of fluid milk handlers

varies markedly, even within short intervals of time. Sometimes the credit position is exceedingly firm--perhaps even excessive for the requirements of the enterprise. During other periods, however, the amount of working capital may dwindle below the point of minimum requirements. Therefore, it is necessary that sufficient security be posted in order that producers be protected in the sale of their milk.

It can be readily discerned that the possible failure of handlers to pay producers in accordance with the terms and provisions of the proposed marketing agreement and proposed order would result in (a) possible loss to producers, and (b) possible nullification of the effectiveness of the proposed marketing agreement and proposed order in effectuating the policy of Congress as stated in the Agricultural Adjustment Act.

A number of States require handlers to furnish security for payment to producers the same as, or similar to, that specified in the proposed marketing agreement and proposed order. With respect to those handlers who have already complied with State regulations, the proposed marketing agreement and proposed order provides that the requirement for security shall be waived with respect to such portion of the value as is already covered (provided that the security is acceptable to the market administrator). This provision is reasonable in that it obviates duplication and eliminates unnecessary expense to the handler.

A P P E N D I X A

THE PRICE STRUCTURE FOR MILK

Technical Paper No. 1, Dairy Section,
Agricultural Adjustment Administration,
United States Department of Agriculture.

THE PRICE STRUCTURE FOR MILK

by

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and
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Introduction

One of the most important and perplexing problems encountered in milk marketing is that pertaining to the classification of milk. This problem is merely one of many, although fundamental and probably the most important, that may and perhaps must be approached through a study of the price structure for milk.

This paper was written for use in connection with marketing agreements and orders for milk. However, numerous questions have arisen pertaining to the classification of milk, the price structure, and related problems, and it is for these reasons that this paper is made available at this time.

This analysis of the price structure has been developed under assumptions of competitive conditions. Numerous details have been omitted in the interest of brevity and in order that the discussion be suitable for general use. The analysis will be expanded as rapidly as possible, and the later phases of the work are to deal primarily with the price structure when the assumptions upon which this paper is based are varied.

The authors have received aid from several persons in the development of this paper. Dr. Warren C. Waite helped draft the paper in all but the latest stages of its development, and Dr. Harold B. Rowe contributed many valuable suggestions relative to the technique of the analysis. Others have made fruitful suggestions and have aided materially in editing the paper.

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Part I

THE PRICE STRUCTURE FOR MILK FOR THE COUNTRY AS A WHOLE

A complete analysis of the price structure for milk for the country as a whole would fill a rather sizable volume. However, for the purposes of this paper, it is unnecessary to devote a great deal of time and space to the development of such an analysis. All that is intended in Part I is to develop a rather general treatment of the price structure for milk for the country as a whole, in order that the analysis of the price structure for milk within a milk shed may be approached more satisfactorily.

An explanation of the price structure for dairy products for the country as a whole involves consideration of (1) the conditions affecting the demand for milk, and (2) the supply characteristics of milk with respect to the localization of particular phases of the industry and the interchangeability of milk between different dairy products. Likewise, an explanation of the price structure for milk within a particular area or a particular milk shed involves consideration of (1) the nature of the demand for the different products derived from milk, and (2) the conditions affecting the supply of milk.

A. The nature of the demand for milk. It is well recognized that the demand for any commodity is a composite of the demands of the different groups of people who are ready to purchase different quantities of it at different prices. Similarly, the demand for a product such as milk, which is used in the production of a number of different products, ^{1/} is

^{1/} In 1932 the total volume of milk used in the manufacture of dairy products and used by the non-farm population as fluid milk and cream was distributed among the various uses as follows:

| Product | Percent of total volume used |
|---|------------------------------|
| Butter - creamery and whey | 45.6 ^{a/} |
| Other manufactured products | 13.2 ^{a/} |
| Milk used by non-farm population as fluid milk and cream | 41.2 ^{b/} |
| Total | 100.0 |

^{a/} Compiled from estimates of the production of manufactured dairy products, Bureau of Agricultural Economics, U. S. Department of Agriculture.

^{b/} Compiled from Estimates of Consumption of Milk and Cream in Cities and Villages, Bureau of Agricultural Economics, U. S. Department of Agriculture.

the aggregate or composite demand for milk in all uses. Thus, although the different forms or products in which milk is used are competitive in the sense that each use competes with all other uses for a portion of the total supply of milk, and the derived demands are rival or competitive, in the aggregate they comprise the total demand for milk. The nature of the demand for fluid milk is discussed at length in Part III of this paper.

B. The supply characteristics of milk.

1. Localization of the industry. Although milk production is an important agricultural enterprise in practically every State in the United States, it nevertheless varies markedly between areas as to relative importance and is highly concentrated in certain areas. An important factor in this connection is the fact that the transportation system has developed so that certain areas possess a comparative advantage in the production of milk for use in the production of dairy products that are readily storable and transportable, and others have a comparative advantage in the production of milk for fluid consumption. Thus, the States of Iowa, Minnesota, Nebraska and Wisconsin produced 44.8 percent of the total volume of creamery butter produced in the United States in 1932 and 1933. Wisconsin and New York produced 64.8 percent and 62.1 percent of the total volume of cheese produced in the United States in 1932 and 1933, respectively. Of the total United States production of evaporated milk in 1933, Wisconsin and California produced 53.3 percent, and the five States of Wisconsin, New York, California, Illinois and Ohio produced 70.0 percent.^{2/} In those areas wherein large urban centers are situated, notably the New England and Middle Atlantic areas, as well as in the territory immediately surrounding other urban centers, the larger part of the total volume of milk produced is utilized in the form of fluid milk and cream.

2. The interchangeability of the supply of milk between uses. The milk supply of the country is interchangeable between uses, especially so in the case of manufacturing uses. In general, there is little difference between the quality requirements for milk used in the production of evaporated milk, butter, cheese and other manufactured dairy products. In addition to the fact that milk is markedly interchangeable between the uses noted above as far as quality requirements are concerned, processing facilities for the different products are so intermingled geographically, and, in fact, are in many cases available in one plant, that the matter of the location of the producer with respect to processing facilities for the different products is usually not important in

^{2/} Manufactured Dairy Products, Bureau of Agricultural Economics, United States Department of Agriculture.

preventing producers from shifting their milk from one channel of disposal to another. Thus, should relative price conditions warrant, the producer can in most cases shift his milk from one use to another. In the case of those plants manufacturing two or more products, the producer does not have to shift his milk from one plant to another; the shift or change in the relative volume of milk entering the different uses being accomplished by the plant management, and for the same reason that would lead the farmer to shift his milk from one use to another.

The interchangeability of the supply of milk between milk produced for use as fluid milk and that produced for use in the production of various manufactured dairy products is not so marked as is the interchangeability of milk between the different manufactured products. This is due in large part to the fact that in most milk markets milk used as fluid milk must be produced in accordance with more stringent sanitary requirements than is the case with milk produced for use in manufactured dairy products. However, this factor operates, principally, to lengthen the period of time necessary for a producer to shift his disposal of milk from manufactured dairy products uses to fluid use. The producer, in order to shift from the production of manufacturing milk to the production of fluid milk, must equip his barn and follow the procedure with respect to sanitation that is specified in the health ordinances of the city or town in which he wishes to sell fluid milk. This involves additional expense in producing milk, but, if the farm price of fluid milk is sufficiently above the farm price of manufacturing milk, the producer will equip his barn and conform to sanitation regulations in order that he may sell fluid milk. Thus, although the degree of interchangeability of milk between fluid use and manufactured product uses is less marked than the degree of interchangeability of milk between the different manufactured product uses, producers can and do shift from the production of manufacturing milk to the production of fluid milk when price relationships warrant. Similarly, when the price of fluid milk declines to a point where it is not sufficiently high to cover the additional costs of producing milk for fluid consumption, producers discontinue the production of milk for consumption as fluid milk and produce milk for use in the production of manufactured dairy products. *

C. Factors affecting the general level of the prices of dairy products.

1. Demand factors. Numerous factors influence the demand for dairy products, such as the volume of the money income of consumers, consuming habits, etc. Perhaps the most important of the factors affecting the demand for dairy products is the volume of money consumers have available for the purchase of goods. Thus, the prices of dairy products vary directly with the income of consumers (assuming constant supplies). The relationship between the index of the farm prices of dairy products and

the index of factory payrolls (taken as a measure of changes in the income of consumers) is shown in Figure 1. As was stated above, numerous factors affect the demand for milk. However, for the purposes of this paper, it is unnecessary to discuss them in detail.

2. Factors affecting the supply of milk. The changes in the volume of milk that will be forthcoming from a given number of cows due to changes in weather, pasture and crop conditions need no comprehensive treatment here, since it is obvious that sudden and wide variations in the weather, droughts and other unusual weather conditions that operate to reduce or increase the quantity and quality of feed relative to the number of livestock, all tend to cause variations in the supply of milk.

Aside from the factors noted above, changes in the prices of dairy products relative to the prices paid by milk producers for the articles used in milk production, as well as changes in the prices of dairy products relative to the prices of other farm products, affect the volume of milk produced. In the Middle West, for example, changes in the prices of competing farm products have an important effect on milk production. An increase in the price of beef, or a relative decline in the prices of dairy products, is sufficient to cause large numbers of farmers in this section, particularly in the area west of the Mississippi, to turn to raising beef steers and heifers and let the calves suckle the cows longer than was the practice before the change in relative prices. In addition, in numerous cases where more than one livestock enterprise is followed on the farm, a relatively larger volume of the feed available is fed to livestock other than milk cows when prices of alternative livestock products become favorable relative to the prices of dairy products.

D. Relationships between the prices of dairy products in different markets.

Since most manufactured dairy products are readily transportable, the price of a product such as butter tends to vary between markets by not more than the amount necessary to cover the cost of shipping the product (freight and handling costs) from one market to another. Thus, in Chicago, Illinois, situated in the large surplus butter-producing area comprising the East North Central and West North Central States, the price of butter is generally lower than in New York City by an amount sufficient to cover freight and handling charges from Chicago to New York City (New York City being located in a deficit butter-producing area). The decidedly close relationships between the prices of butter in different markets are shown in Figure 2.

The prices of cheese in different markets vary together (see Figure 3), partly for the same reasons as those advanced above with respect to butter and also because of the possibility of shifting from cheese production to the production of butter, which is more widely

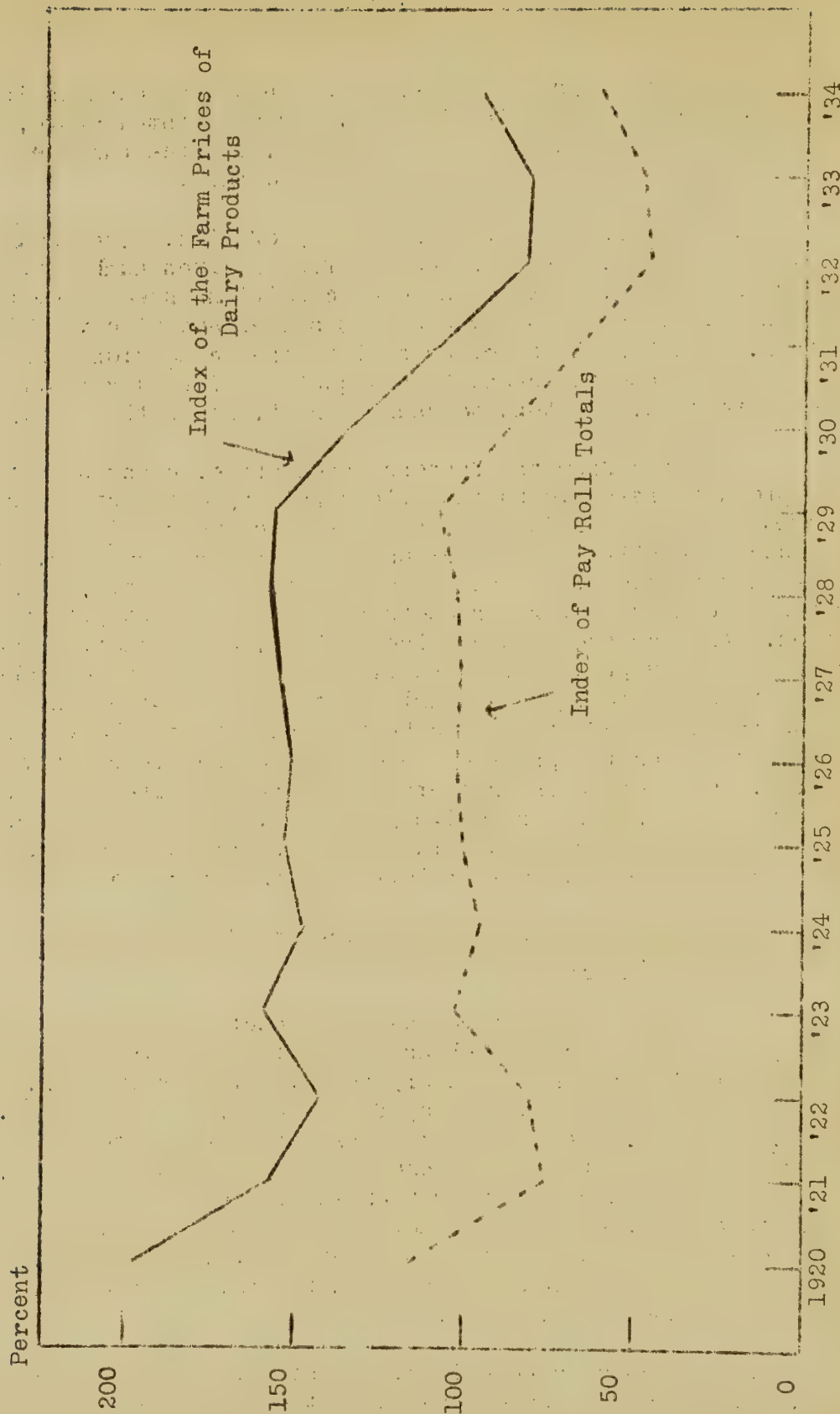


FIGURE 1. - INDEX NUMBERS OF U.S. FARM PRICE OF DAIRY PRODUCTS
(AUGUST 1909 - JULY 1914 = 100)
AND INDEX NUMBERS OF PAY ROLL TOTALS IN MANUFACTURING
INDUSTRIES (1923-1925 = 100)
1920-1934

transported. The same relationships exist with respect to evaporated milk.

In view of the foregoing, it should be evident that the market for the most important manufactured dairy products is national in character and that the price of milk or butterfat used in the different products noted above in any particular area is closely associated with the price of milk so used in any other area.

E. Relationships between the price of milk used in different products.

As was pointed out in B above, the supply of milk is markedly interchangeable between uses in the case of milk produced for manufacturing purposes and to a lesser extent between fluid milk and manufacturing milk uses. This factor operates to establish close relationships between the price of milk in different uses, in the country as a whole, as well as within areas. (See Figure 4.) Thus, although the price of milk produced for use as fluid milk is generally higher in any particular area than the price of milk produced for use in manufactured dairy products (for the reasons advanced in section B and section C), and therefore the market for fluid milk in any particular area may be considered as a local market, the price of milk produced for use as fluid milk varies with the price of such milk in any other area and also varies with the price of milk produced for use in manufactured dairy products, both for the country as a whole and in the different sections of the country.

Table 1. Wholesale prices of butter and cheese, index numbers of milk prices and index numbers of payroll totals, 1920-1934.

| Year | Wholesale price of butter | Wholesale price of cheese | Index of milk prices | Index of payroll totals |
|------|---------------------------|---------------------------|----------------------|-------------------------|
| 1920 | 61.4 | 58.65 | 191 | 117.1 |
| 1921 | 43.3 | 41.68 | 158 | 76.2 |
| 1922 | 40.6 | 39.21 | 141 | 81.3 |
| 1923 | 46.9 | 46.03 | 155 | 103.3 |
| 1924 | 42.6 | 41.19 | 139 | 96.1 |
| 1925 | 45.3 | 44.07 | 142 | 100.6 |
| 1926 | 44.4 | 42.79 | 139 | 103.8 |
| 1927 | 47.3 | 45.78 | 141 | 101.8 |
| 1928 | 47.4 | 46.00 | 142 | 102.4 |
| 1929 | 45.0 | 43.75 | 142 | 109.1 |
| 1930 | 36.5 | 35.23 | 128 | 88.7 |
| 1931 | 28.3 | 27.05 | 98 | 67.5 |
| 1932 | 21.0 | 20.07 | 73 | 46.1 |
| 1933 | 21.66 | 20.79 | 72 | 48.5 |
| 1934 | 25.7 | 24.77 | 85 | 61.9 |

Compiled from records of the United States Department of Agriculture and the United States Bureau of Labor Statistics.

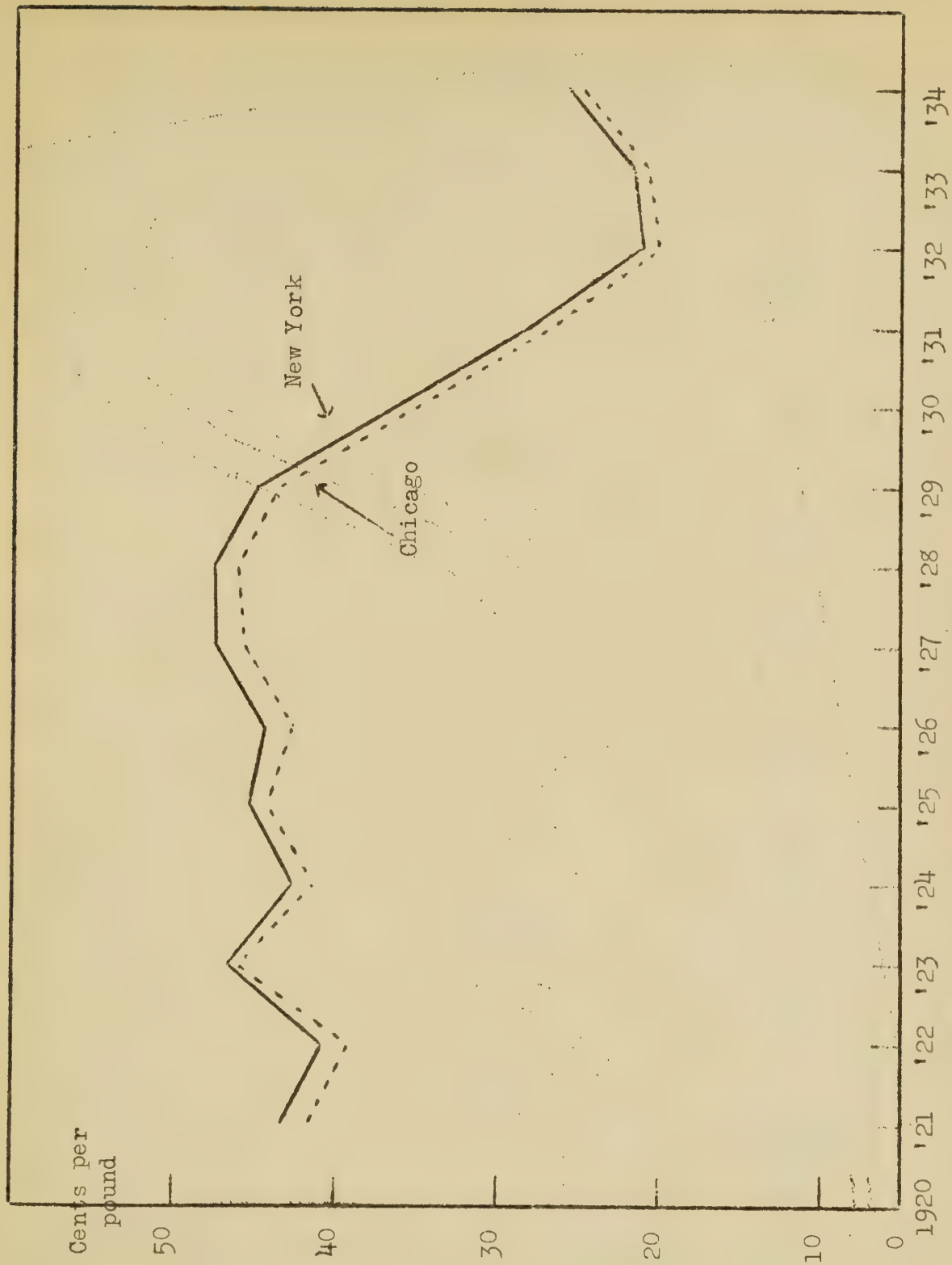


FIGURE 2. - WHOLESALE PRICE OF 92-SCORE CREAMERY BUTTER AT
NEW YORK CITY AND CHICAGO, 1921-1934.

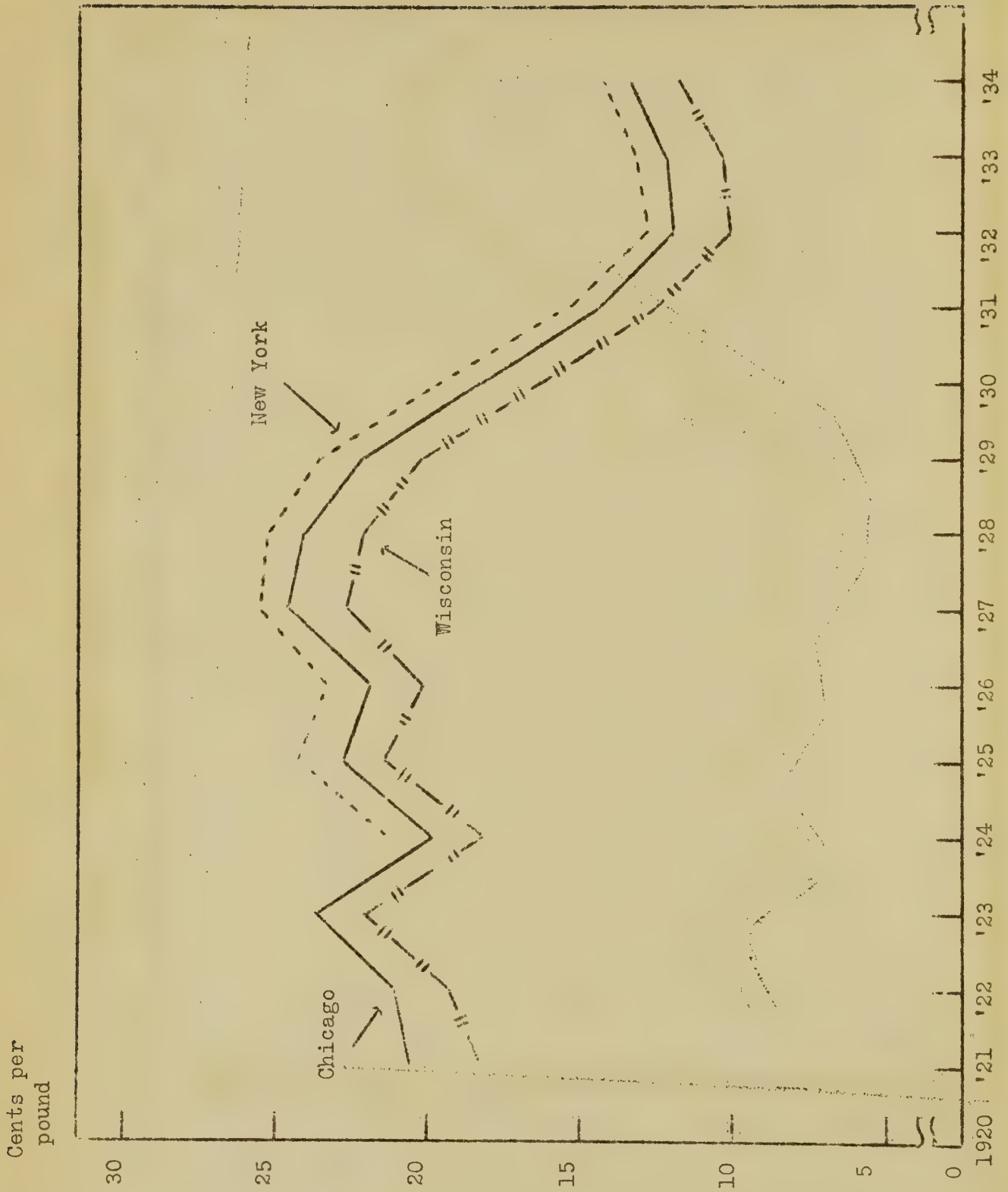


FIGURE 3. - WHOLESALE PRICES OF AMERICAN CHEESE - NEW YORK SINGLE DAISIES, CHICAGO SINGLE DAISIES, AND WISCONSIN TWINS (ON THE WISCONSIN CHEESE EXCHANGE), 1921-1934.

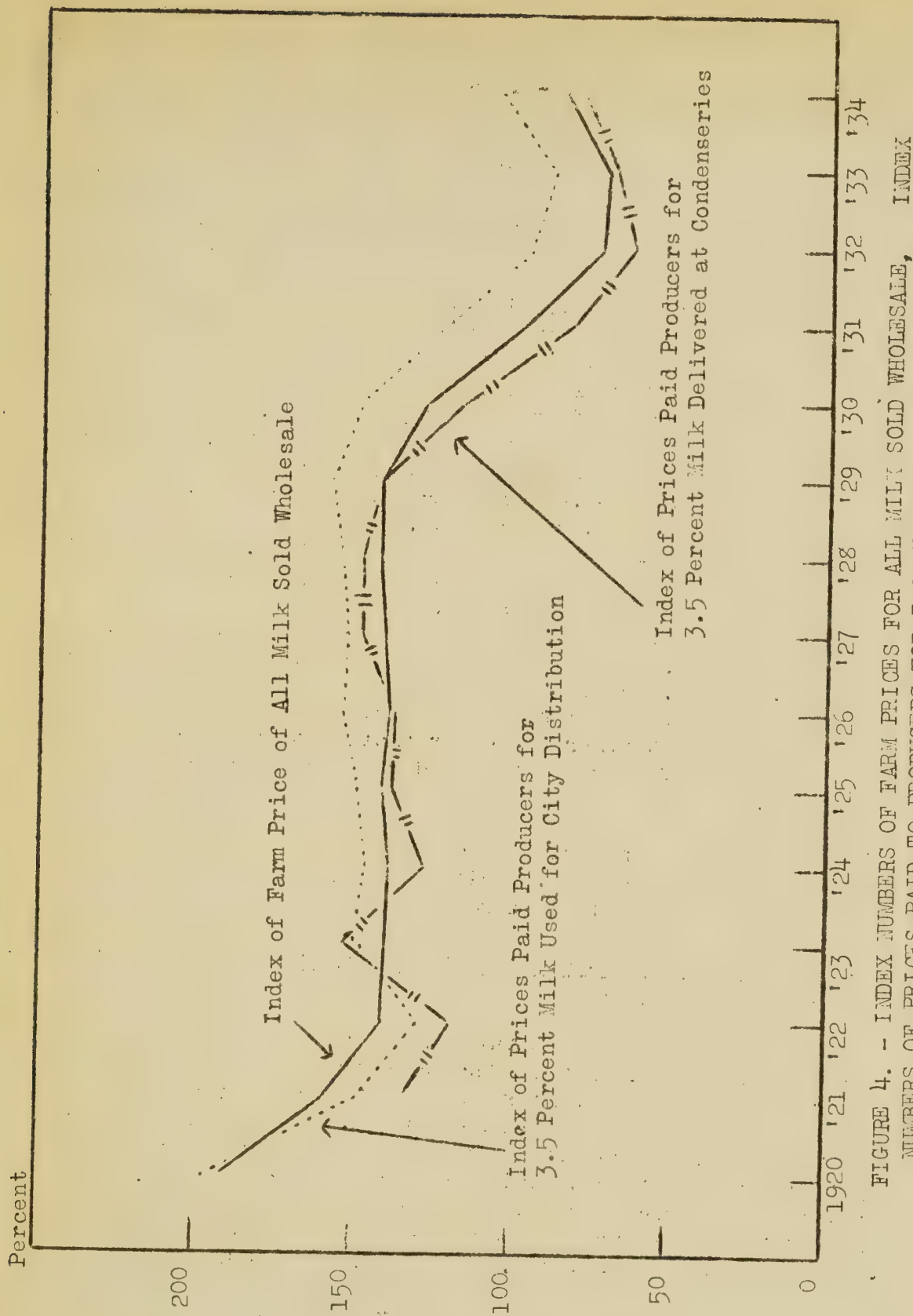


FIGURE 4. - INDEX NUMBERS OF FARM PRICES FOR ALL MILK SOLD WHOLESALE, NUMBERS OF PRICES PAID TO PRODUCERS FOR 3.5 PERCENT MILK DELIVERED AT CONDENSERIES, AND INDEX NUMBERS OF PRICES PAID BY MILK DEALERS FOR MILK TESTING 3.5 PERCENT BUTTERFAT, USED FOR CITY DISTRIBUTION AS MILK AND CREAM, UNITED STATES, 1920-1934. (1910-1914 = 100)

Part II

THE PRICE STRUCTURE FOR MILK WITHIN A MILK SHED

The terms under which milk is sold vary widely between markets. In some markets, usually small markets located within a surplus area or with few or no sanitation requirements, producers receive the same price f.o.b. the market for all milk, regardless of whether it is used for fluid milk, cream or manufactured dairy products. In other markets, while producers receive the same price for all milk sold, this price is a weighted average price which is computed by adding together the value of milk sold to distributors in accordance with a schedule of the prices for milk used for various products, and dividing the total sum so computed by the total volume of sales to distributors. In still other markets, producers receive two or more different prices for different portions of the milk which they deliver, a weighted average price for that portion of their milk sold as fluid milk and cream, and a lower price on the remainder, which is used in the production of manufactured dairy products. Again, producers may receive one price for that portion of their milk sold as fluid milk; another price for that portion sold as fluid cream, and still another price for that portion which is used in the production of manufactured dairy products such as butter, evaporated milk and cheese.

In this section, the relationships between the prices of milk used for different purposes f.o.b. city, and the farm price structure arising therefrom, are examined in some detail.

A. The price structure; uniform quality requirements - centralized processing.

For purposes of presentation, the price structure is examined in a hypothetical market, wherein factors operating to establish a differentiation in the prices of milk used in the production of different dairy products are assumed to be non-existent. One by one the factors operating to establish such differentiation in the prices of milk used in the production of different dairy products are considered, and thus the analysis of the price structure progresses from that of the highly simplified hypothetical market toward that of the most complex type of market. For purposes of analysis, therefore, it is assumed that:

1. There is a freely competitive market.
2. Local delivery costs and labor are the same for all classes of product.

3. There is no variation in the volume of milk consumed in different forms.
4. All milk, whether sold to consumers as fluid milk or other dairy products, is of uniform quality.
5. All milk is brought to the city in fluid form, there to be processed into the various dairy products.
6. There is no variation in the volume of milk sold per farm from day to day.

Under the conditions noted above, it is obvious that producers would receive the same per unit price for all milk brought to the market since each unit of the supply is interchangeable with every other unit. This would be true regardless of whether the milk were sold to the consumer as fluid milk, fluid cream, or manufactured dairy products.

However, it is well recognized that the butter and other manufactured dairy products equivalent of a unit of milk can be transported long distances at very low cost per product equivalent of a unit of milk as compared to the cost of transporting a unit of milk the same distance, and can be kept in storage for a relatively long period of time without appreciable deterioration in quality. Manufactured dairy products are composed largely of milk solids, or, stated differently, they are composed of one or more of the constituents of milk concentrated to a very much greater degree than in whole milk. Thus it is more economical to produce the finished product, such as butter, cheese, etc., at a distance from the market and transport the finished product to the market, rather than to transport whole milk to the market and there process it into the finished product (unless, of course, the demand for all the products of milk in the market can be satisfied from the volume of milk produced in the area immediately surrounding the market). For example, one hundred pounds of butter contain approximately 80 pounds of butterfat, and one hundred pounds of 3.5 percent milk contain 3.5 pounds of butterfat. Assuming that transportation costs per one hundred pounds of product are equal, the cost of transporting butterfat in the form of butter and in the form of 35 percent cream would be about $1/23$ and $1/10$, respectively, of the cost of transporting butterfat in the form of milk. The reasons given above suffice to explain why manufactured dairy products are produced, in many cases hundreds of miles from the market, and shipped to the market in finished product form rather than being shipped to the market in the form of fluid milk and there processed into the finished product.

B. The price structure; uniform quality requirements - decentralized processing.

For the purpose of considering the manner in which the transportation factor affects the price structure for milk within a milk shed, the preceding assumption that all milk is brought to market, there to be processed into the several milk products, is now dropped and, instead, in addition to the remaining assumptions noted previously, it is assumed that:

1. All the milk which is produced within 100 miles from the market is needed to satisfy the demand for fluid milk.
2. All the milk which is produced in the area between 100 and 150 miles from the market is needed to meet the demand for fluid cream.
3. All the milk which is produced within the area between 150 and 200 miles from the market is needed to meet the demand for evaporated milk.
4. All the milk which is produced within the area between 200 to 400 miles from the market is required to meet the demand for butter.
5. Transportation costs vary in direct proportion to distances at the following rates per unit per mile:
 - (a) Whole milk - 1 cent per hundredweight.
 - (b) The cream equivalent of 100 pounds of 3.5 percent milk - 0.2 cent.
 - (c) The evaporated milk equivalent of 100 pounds of 3.5 percent milk - 0.1 cent.
 - (d) The butter equivalent of 100 pounds of 3.5 percent milk - .05 cent.
6. The farm value of skim milk exactly equals the cost of separating cream from milk.
7. The f.o.b. city value of the butter equivalent of 3.5 percent milk (it is assumed that the over-run is necessary to cover the manufacturer's margin) is \$1.00.

Under the above assumptions the f.o.b. city prices that must be paid for milk in order to secure the volume necessary to meet the demand for milk, as well as the f.o.b. city prices that must be paid for the cream equivalent and evaporated milk equivalent of 100 pounds of milk to

meet the respective demands, can be readily computed. Thus, with the f.o.b. market price of the butter equivalent of 100 pounds of 3.5 percent milk at \$1.00, the farm price of 100 pounds of milk which is converted to butter at a point 400 miles from the market is \$1.00 less the cost of transporting the butter equivalent of 100 pounds of such milk to the market, or 80 cents ($\$1.00 - (400 \times \$0.0005) = \$.80$). At a point 200 miles from market the farm price of milk used for butter is 90 cents ($\$1.00 - \$.10$ transportation costs = \$.90). If milk is to be used in the production of evaporated milk at a point 200 miles from the market, the farm price of such milk must be 90 cents per hundredweight or else farmers will sell their milk to butter manufacturers rather than manufacturers of evaporated milk. The f.o.b. city price of the evaporated milk equivalent of 100 pounds of 3.5 percent milk will be the farm price of 100 pounds of 3.5 percent milk at a point 200 miles from the market, plus the cost of transporting the evaporated milk equivalent of such milk to the market, or \$1.10 ($\$.90 + \$.20 = \1.10). Similarly, the farm price of milk used to produce cream at a point 150 miles from the city must be equal to the farm price of milk used to produce evaporated milk at that point, else farmers will sell their milk for use in evaporated milk rather than cream, and the f.o.b. city price of the cream equivalent of 3.5 percent milk will be the farm price of such milk at a point 150 miles from the market plus the cost of transporting the cream equivalent of 100 pounds of 3.5 percent milk from that point to the city, or \$1.25 ($\$.95$ farm price at 150 mile-point + \$.30 transportation costs to market = \$1.25). Similarly, the f.o.b. city price of 3.5 percent milk will be the farm price of milk used for cream at a point 100 miles from the market plus the cost of transporting fluid milk to the market, or \$2.05 ($\1.05 farm price at 100 mile-point + \$1.00 transportation costs to market = \$2.05).

Therefore, under the conditions assumed the prices for milk and milk products f.o.b. city would be as follows:

1. Fluid milk - \$2.05 per hundredweight.
2. The cream equivalent of 100 pounds of 3.5 percent milk - \$1.25.
3. The evaporated milk equivalent of 100 pounds of 3.5 percent milk - \$1.10.
4. The butter equivalent of 100 pounds of 3.5 percent milk - \$1.00 (assumed, but of course a different price f.o.b. the market for the butter equivalent of 100 pounds of 3.5 percent milk would be associated with different prices for the other milk products than those computed above).

Under the conditions assumed it is also obvious that milk would not be shipped to the city to be processed into the several dairy products

(except in case of error or lack of knowledge with respect to the most profitable channel of disposal, which is not possible under the assumptions set forth). Prices in the city would be quoted for milk, cream, evaporated milk and butter. All milk brought to the city would command one price, cream another, etc. Thus, there would be no differentiation in milk prices f.o.b. city.

The farm price for milk at any given point within any particular zone is, of course, equal to the farm price of milk at the outer edge of the zone plus the difference between the cost of shipping milk in the particular form to the market from the outer limit of the zone and the cost of shipping such milk from any given point within the zone. The farm price structure for milk that would obtain under the conditions set forth above is shown in Figure 5.

C. The price structure; varying quality requirements - decentralized processing.

If the assumption that all milk is of uniform quality is discarded, and it is assumed that the quality requirements for milk used in the form of fluid milk and cream are higher than those for milk used in the production of evaporated milk and butter, then the type of market under analysis is somewhat more comparable to the rather complex type of milk market now obtaining in many large urban areas.

Sanitation requirements vary somewhat between milk markets. Usually, the requirements cover such items of sanitation as periodic veterinary examination of cows, cleanliness of cows, cleanliness of dairy barns in addition to specifications with respect to the type of flooring, light, etc., specifications with respect to the type and care of the milk house, cleaning and care of utensils, and rules and regulations pertaining to milking and handling of the milk.

It should be obvious that the sanitation requirements under which milk for fluid milk and cream is produced, which in by far the larger number of cases are more stringent than the sanitation requirements under which milk for manufacturing purposes is produced, operate to increase the cost of producing milk for use as fluid milk and cream relative to the cost of producing milk for manufacturing purposes. Thus, over a period of time, the supply price ^{3/} of a given volume of milk used for fluid milk and cream will be somewhat higher than the supply price of the same volume of milk used for manufacturing purposes, other factors remaining constant. Of course, the difference between the supply prices of milk produced for use in different products in any milk supply area, other factors being the same, will depend upon the differences in the sanitation requirements applicable to milk produced for use in the different products. If it were assumed that sanitation requirements raise

^{3/} The price that must be paid in order that a given volume of milk of the desired quality be forthcoming.

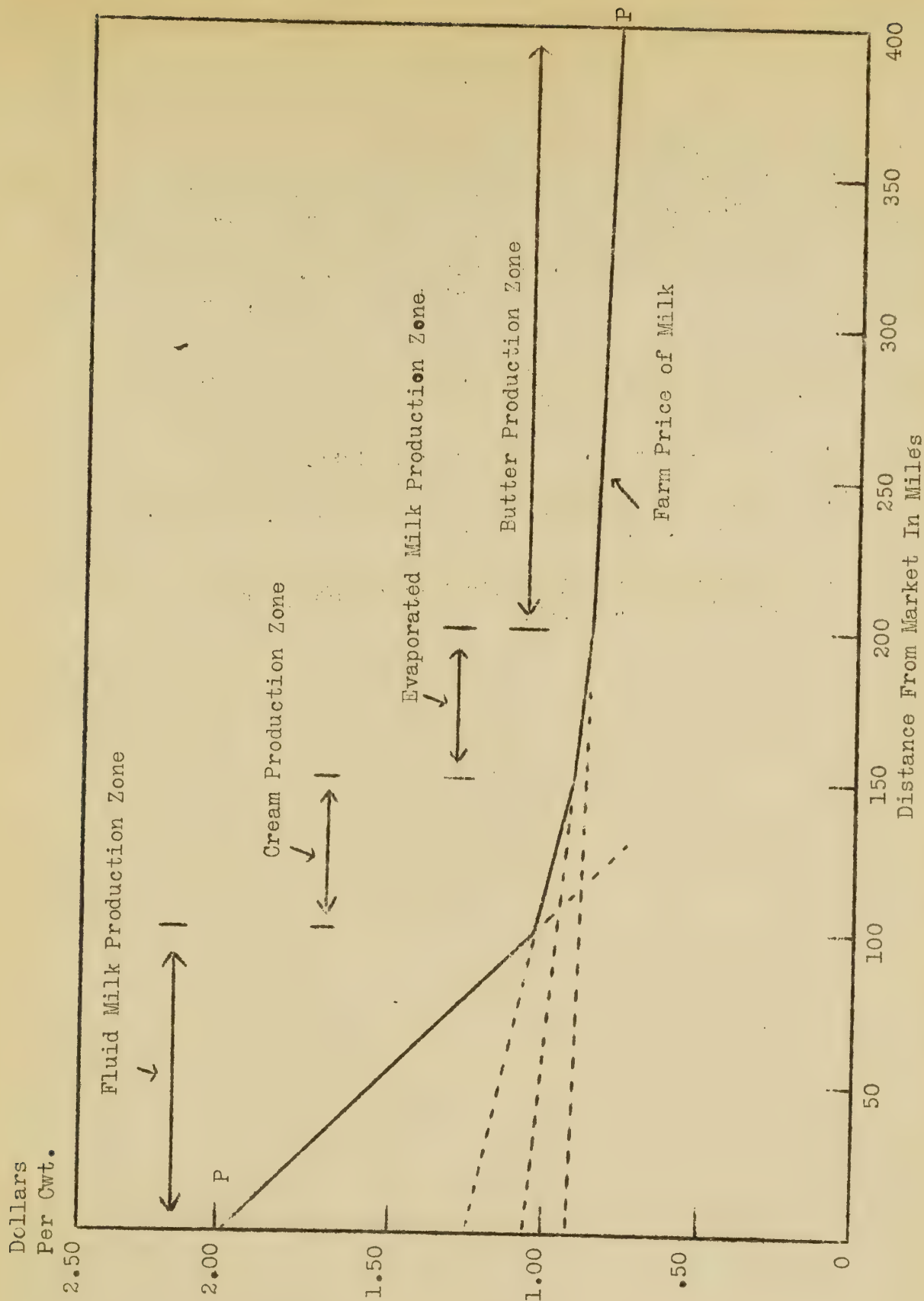


FIGURE 5. - PRODUCTION ZONES AND FARM PRICE STRUCTURE, FOR SPECIFIED DAIRY PRODUCTS AS DETERMINED BY THE TRANSPORTATION RATE STRUCTURE

F.O.B. Market Prices For Specified Product
Equivalent of 100 pounds of 3.5 Percent Milk

the supply price of milk for use as fluid milk and cream 20 cents per hundredweight per farm above the supply price per hundredweight for milk used for manufacturing purposes, the price structure under the assumed conditions would be similar to that set forth in Figure 6 (a position of stable equilibrium is assumed, so that the f.o.b. city prices that prevail, and the farm price structure arising therefrom, are normal supply prices).

Under the conditions assumed, the prices for milk and milk products f.o.b. city would be as follows:

1. Fluid milk - \$2.25 per hundredweight.
2. The cream equivalent of 100 pounds of 3.5 percent milk - \$1.45.
3. The evaporated milk equivalent of 100 pounds of 3.5 percent milk - \$1.10.

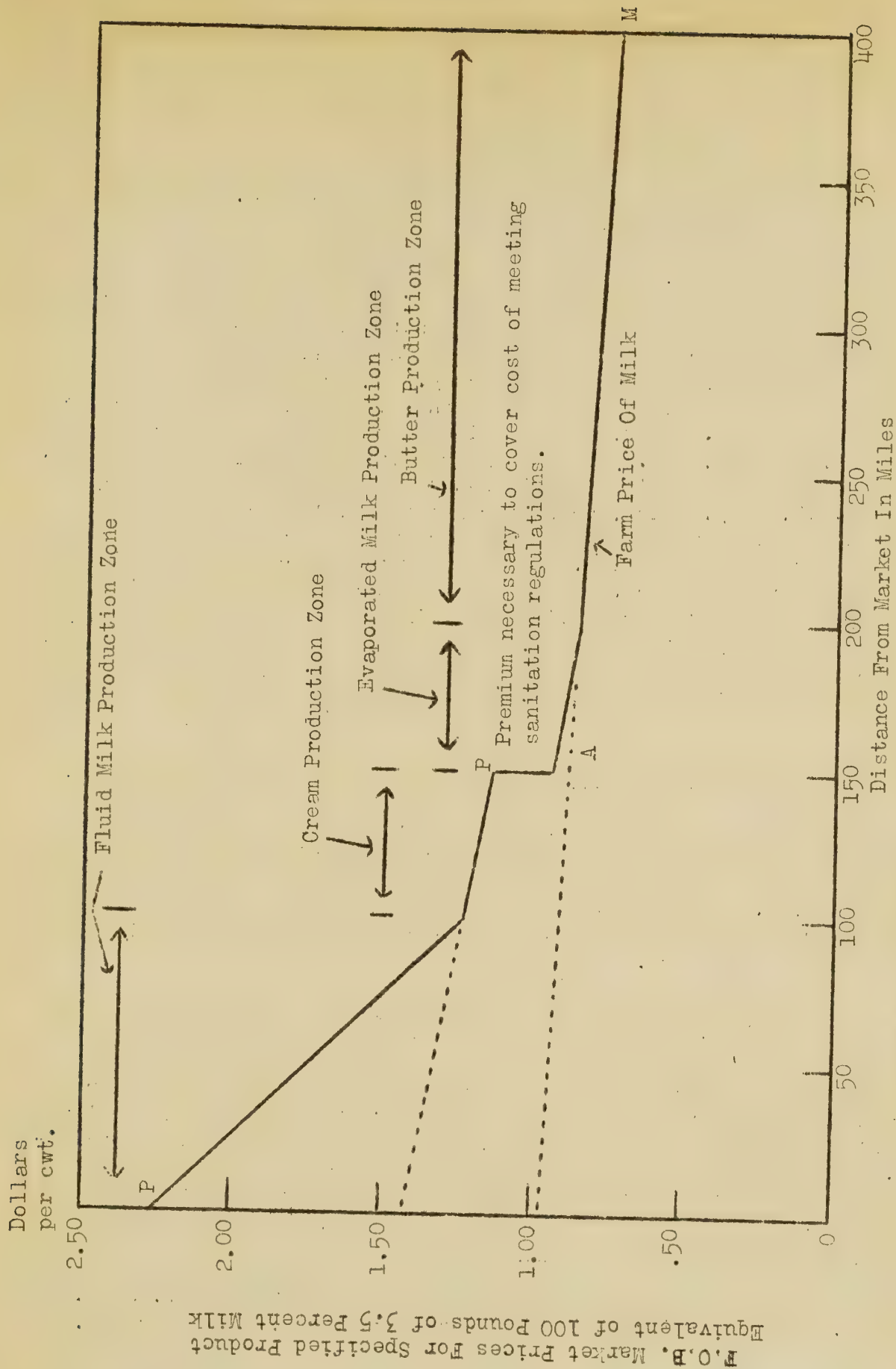


FIGURE 6. - PRODUCTION ZONES AND FARM PRICE STRUCTURE FOR SPECIFIED DAIRY PRODUCTS AS DETERMINED BY THE TRANSPORTATION RATE STRUCTURE AND SANITATION REGULATIONS FOR FLUID MILK AND CREAM.

4. The butter equivalent of 100 pounds of 3.5 percent milk - \$1.00.

In Figure 6, the line PP represents the farm price of milk used for fluid milk and cream; the line AM the farm price for milk used in the production of evaporated milk and butter. It should be noted that as yet no factor has been introduced that will operate to establish different prices for milk f.o.b. the city. Under the assumed conditions, all milk produced within a particular zone will be used in the production of the same product. Thus, no milk will be shipped to the market as milk from the cream zone, etc. Stated differently, there will be no differentiation between the price of milk based on the form in which such milk is sold f.o.b. city. Also, no factor has been introduced that will operate so that individual producers will receive different prices for different portions of their milk. Producers within each zone will sell all of their milk at one price. Farm prices in a particular zone will vary as transportation costs from different points in the zone to the city vary, and will vary between zones because of differences in transportation costs of milk and the product equivalent of milk, and because of differences in cost of producing milk engendered by differences in the sanitation regulations applicable to milk and milk products.

D. The price structure as affected by type of transportation.^{4/}

It should be emphasized that the foregoing treatment of the effects of the transportation rate structure and sanitation requirements on the price structure for milk has been greatly simplified for purposes of presentation. Variations in the transportation rate structure and sanitation regulations from those assumed bring additional complexities into the price structure.

One of the assumptions on which this analysis has been based so far is that transportation rates vary according to distance and weight only. However, several factors influence transportation costs, the more important of which are type of transportation (truck, tank car and railroad), complementary services, topography of country, volume, labor conditions, gasoline and truck costs, and local transportation arrangements. Some attention will be given to the effect of these various factors on the price structure and size of sheds for the different types of dairy products.

^{4/} This section is based largely upon a report prepared by Dr. J. M. Tinley, formerly Principal Agricultural Economist, Dairy Section.

1. Type of Transportation. From points relatively close to a market, producers frequently find it advantageous (or less costly) to transport their own milk to the city. Many producers use small trucks to transport feed, implements, etc., from the city to their farms or from one part of the farm to another and find it convenient to take their milk direct to a city plant. The farmer or a member of his family operates the truck and because of proximity to the city can reduce operating costs per cwt.-mile to a very low figure. However, as distance from the city increases, operation of a small truck per hundredweight milk increases rapidly. A large load becomes more economical so larger trucks are used. Few farmers have sufficient milk to supply a load for a large truck, so either a distributor, a private agency (hauler) or a cooperative association operates a truck and collects milk from several farmers.

After a certain distance varying between, say, ten and sixty miles, depending upon the topography, density of supply, etc., truck transportation becomes too expensive per hundredweight mile. It is expensive to operate a large truck (or truck and trailer) over country roads especially as production often becomes more scattered as distance from a city increases.

Under these conditions, milk is usually hauled by producers or by truck to a centralized country assembling point, cooled and loaded into a tank truck and hauled into the city. Also, there are definite limits to the distance from which milk can be hauled by tank truck. In some of the larger markets, milk is collected at country stations and cooled, and then shipped by train to the consuming center. In a few instances, milk is processed and bottled at a country point and shipped into the city for distribution.

In Figure 7 are shown, hypothetically, the transportation costs on milk into a large consuming center.^{5/} For the first ten miles, milk producers will haul their own milk, the lowest cost being five cents a hundred pounds (most of which is for handling costs). The total cost rises as distance from the consuming center increases, but after about fifteen miles, costs rise very rapidly. There is a zone in which milk may either be handled by the producer or by truck. From about twenty miles, however, it becomes more economical to haul by truck. This is probably true up to about seventy miles. From seventy to ninety miles is another zone of indeterminateness in which milk may be hauled either by truck (in cans) or assembled and hauled in tank truck.

^{5/} The variations here discussed are not considered in later Figures. Therefore, a different set of rates has been assumed, under which the differences in rates have been magnified.

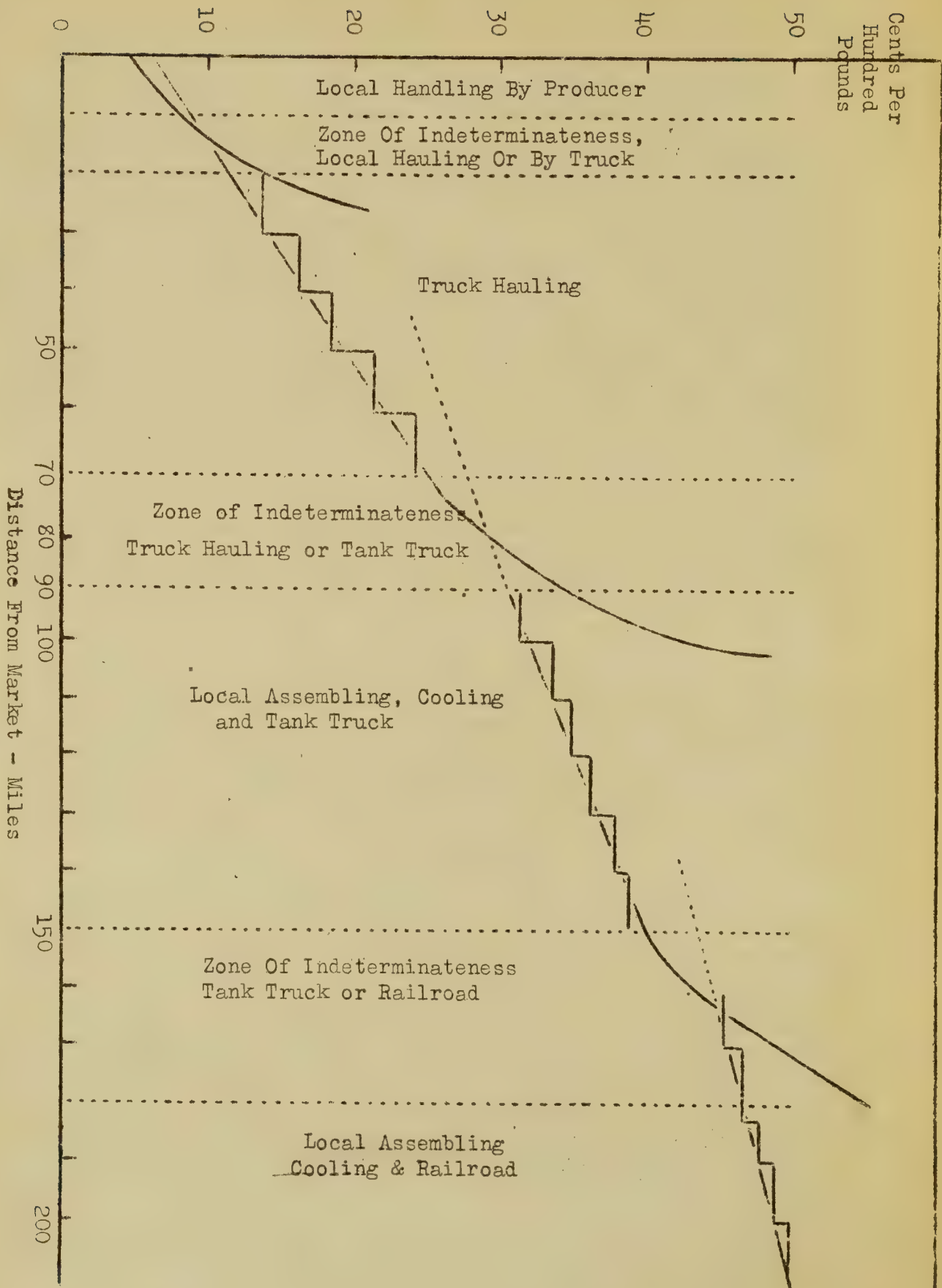


FIGURE 7. - THE INFLUENCE OF TRANSPORTATION RATE STRUCTURE UPON THE PRICE STRUCTURE FOR MILK ^{1/}

^{1/} See text for assumptions on which diagram is based.

From ninety to one hundred and fifty miles, milk will be hauled in tank trucks, but for greater distances the time of hauling and load limitation would tend to make it more economical to assemble milk at a country plant and transport milk to city by train. There is a zone of indeterminateness from 150 to 180 miles in which milk may be hauled either by tank car or by railroad.

These distances would vary from market to market depending upon topography, state of roads, density of supply, relative costs of different methods of transportation, etc.

Transportation rates are commonly set on the basis of zones, under which rates, instead of increasing directly in proportion to distance, increase in a series of steps as is shown in Figure 7.

2. Complementary Services. Transportation rates usually include some elements of cost other than mere hauling. Milk has to be loaded and unloaded, iced or refrigerated. These are usually more or less fixed costs and do not vary with the length of haul. Thus the longer the distance hauled the lower these costs become per mile, resulting in a tendency for transportation rates per unit to decline as distance increases.

There is somewhat greater risk in hauling milk than in hauling butter -- milk has to be handled with more care and speed. For this reason a particular transportation agency may charge a higher rate for hauling an equal volume or weight of fluid milk than for butter or evaporated milk.

3. Rate Schedules. Many transportation agencies, especially railroads, do not arrange their rate schedules by miles, but by zones. It is thus possible that the rate will be the same on milk hauled 101 miles and 120 miles.

4. Topography of Country. Transportation costs per mile are usually somewhat higher in mountainous and hilly country than in flat, level country. This is due to the fact that more fuel is consumed, fuel costs are themselves high, there is more strain on vehicles and speed is greatly reduced. The condition of the roads is also important. Narrow, winding roads greatly reduce the speed of trucks and to a certain extent regulate the type of trucks that can be used.

5. Volume of Milk. Where dairies are small and scattered, the costs of collecting milk are considerably higher than where production is more concentrated. Frequent stops to pick up small quantities of milk and a long distance between stops materially increase hauling costs.

Railroads usually charge different rates, depending upon whether the commodity is hauled in carlot or less than carlot units.

6. Labor Conditions. An important part of hauling costs is the expenditure for truck drivers and mechanics. In cities where labor is cheap, rates may be somewhat lower than where wages are high.

7. Gasoline and Trucks. The prices of gasoline, oil, trucks and spare parts vary considerably in different parts of the country. This may have a material influence on hauling costs in different localities.

8. Control of Hauling. In some markets, all transportation is handled by one agency or by not more than two or three agencies. This reduces overlapping of routes to a minimum and should result in lower unit operating costs. In other markets, each producer or each distributor undertakes to make his own hauling arrangements. In such markets, a great deal of overlapping may occur. Efficient use is not made of transportation facilities, and consequently rates will tend to be higher than where there is centralized control of hauling.

The foregoing serves to indicate some of the factors that affect the transportation rate structure for milk.

E. The price structure as affected by the type of sanitation regulations.

Some of the factors that must be taken into account in determining how sanitation requirements affect the price structure for milk in different milk sheds and for a particular shed are as follows:

(1) The sanitation regulations in force in the milk shed. Sanitation regulations are much more stringent in some markets than in others. There is, therefore, no possibility of developing a generally applicable cost figure which could be applied to the price structure for milk within a particular market and used in the practical determination of milk prices within a particular milk shed.

(2) The cost of meeting sanitation regulations, even though the regulations are the same in some markets as in others, may be widely different. Labor and material prices may vary materially between different markets, so that, even though the regulations may be exactly the same between particular markets, the cost of meeting the sanitary regulations may vary materially.

(3) In addition, health and sanitation regulations may be of such nature as to permit only those producers located relatively near the market to qualify as fluid milk producers. For example, the imposition

of a regulation requiring that fluid milk shall be delivered to the consumer within a given number of hours from the time it is produced would automatically set a maximum distance over which milk could be transported and might reduce materially the area from which fluid milk could be shipped to the market. In this case the price for fluid milk would increase until consumption was reduced, or until production within the area was increased, or both, to the point where the market would just use the milk produced within the new zone. This, of course, would increase the price spread between fluid milk and the product equivalent of milk used in other dairy products f.o.b. the market, and would increase the farm prices of fluid milk relative to the farm price of milk used in the production of other dairy products.

Also, sanitation regulations may not increase the costs of meeting the sanitation regulations by the same amount per unit of product on all farms. Some farms are better equipped than others and hence have smaller additional expenditures to meet requirements. Large dairies can ordinarily utilize equipment more economically and, therefore, their cost per unit for milk houses, cooling equipment and other outlays commonly required by health and sanitation regulations is lower. Such dairies have their competitive position improved by the raising of inspection requirements and may increase their production. Others may tend to shift to cream, or butter production, rather than make the additional outlays necessary. Depending upon these effects on supply, zones from which the various products are shipped to the market may be either enlarged or reduced by the imposition of or changes in the sanitation regulations.

While this discussion of the price structure has been developed entirely in terms of transportation costs and costs of meeting health and sanitation requirements, it should be apparent that variations in costs resulting from other causes will work out in practically the same manner. The important distinction is between the effects on the price structure of those costs which vary with distance from market, as does transportation, and costs which are likely to be rather uniform regardless of distance from the city. The influence of each of these types upon the price structure for milk is illustrated in a general manner by this analysis of transportation costs and costs of meeting health and sanitation regulations.

Variations between farms, such as those due to available equipment, type and condition of herds, type of land, labor supply and even personal preferences, will partially determine which farmers will produce milk for the various uses. Also the relative significance of these latter factors becomes greater as class differentials become smaller near the boundaries of zones. Therefore, their principal effect

is to cause the boundaries between the areas in which the several classes are produced to be less clearly defined than would be indicated by the simplified example set forth in the analysis.

(4) Also, there are higher sanitation regulations for fluid milk than for cream in some markets. This operates to establish higher supply-prices for milk produced for use as fluid milk than for milk produced for use as fluid cream.

The foregoing serves to indicate in a general way the manner in which sanitation regulations affect the price structure for milk within a milk shed, and how differences in the sanitation regulations may affect the price structure in different milk sheds.

F. The price structure; decentralized processing - uniform quality requirements - variations in production.

The manner in which the transportation rate structure and sanitation regulations affect the price structure for milk within a milk shed has been set forth in some detail in the preceding pages. In order to approach more nearly the price structure for milk as it actually exists in many milk markets consideration will be given to the price structure under the conditions that prevail when the assumption that there is no variation in production is dropped.

There are marked variations in the production of milk, which are perhaps most easily classified on the basis of time periods, such as day to day, week to week, year to year, and long time variations. There is some day to day variation in production, although this type of variation is undoubtedly negligible. The seasonal variation that takes place in milk production within most milk sheds ^{6/} is marked, production in the fall and winter months usually being much less than production in the spring and summer months. This type of variation is due largely to such factors as (1) the greater supply of succulent feed available during the pasture season, (2) time of freshening of cows, (3) inclement weather during the winter months, etc. In some areas, the seasonal variation in production is much more extreme than in others ^{7/} and even within the same area, production often shows a more marked seasonal variation in some regions than others within the area.

Year to year changes in production are due to such factors as (1) differences in feed production conditions that are associated generally with differences in weather and growing conditions, (2) shifts into and out of the dairy business due to changes in the relative

^{6/} Ross, H. A., Cornell University, Agri. Exp. Station Bulletin No. 527; also based on production data secured with respect to the markets operating under Federal milk licenses.

^{7/} Based on production data secured with respect to the markets operating under Federal milk licenses.

profitableness of milk production as compared to other types of agricultural production, (3) other factors that may operate intermittently, such as the imposition of a sanitary regulation to the effect that all milk sold in the market as fluid milk and cream must come from cows free from tuberculosis, which may operate to cause a marked decrease in the number of milk cows within the area, reduce production within the area quite markedly for a short period, and necessitate a temporary increase in the size of the milk shed.

Cyclical and long-time changes in production are probably associated with long time trends in demand, such as changes in the consuming habits of the people, the ebb and flow of population in urban centers and other factors such as changing opportunity cost relationships and type of farm organization and operation which set the limits of expansion of production within a given area, etc.

Seasonal variation is one of the most important types of variation in production. For purposes of presentation, therefore, the manner in which seasonal variation in production affects the price structure for milk within a milk shed is considered, with all other types of variation in production noted above held constant. ^{8/}

For most milk markets the volume of milk sold to consumers as fluid milk and cream varies somewhat from season to season, but the production of milk varies much more seasonally. Thus, during the period of low production, the production of milk within a milk shed may be just sufficient to meet market requirements (an amount about ten percent in excess of average daily sales), while during the season of flush production the volume of milk produced within the milk shed is usually far in excess of market requirements.

For purposes of presentation, it is assumed that (1) during the period of low production the volume of production within the 100-mile zone (see Figure 5) is equal to market requirements for fluid milk, (2) the sanitation regulations are the same for all milk regardless of the form in which it is sold, (3) production varies seasonally, (4) there is no difference between the seasonal production curves of individual producers, and (5) there are no variations in consumption other than daily. Under these conditions, there are several lines of procedure which distributors might follow with respect to purchasing milk from producers, such as (1) expanding and contracting the area from which milk is secured inversely to the expansion and contraction of milk production, (2) taking all the supply of milk produced within a given area (wherein the supply during the period of low production is just sufficient to meet the market requirements for fluid milk)

^{8/} For ease in presentation, the examples used to explain certain points are stated in terms of fluid milk only throughout the remainder of this paper. The same treatment is applicable in a general way to other dairy products.

and paying producers prices low enough to enable distributors to secure a high enough margin on fluid milk to cover the losses incurred in handling manufacturing milk during the period when supplies are larger than fluid requirements, or (3) purchasing milk from producers under a price arrangement which encourages producers to produce an even volume of milk throughout the year.

If distributors elected to secure their market requirements for fluid milk by contracting and expanding the area from which they draw their supplies inversely to the seasonal variation in production, refusing to take the production of distant shippers during the season of low production, the zones from which fluid milk would be drawn at different periods of the year would show marked difference from that shown in Figure 5. If, during the period of low production the volume of milk produced in the area within 100 miles of the market were sufficient to meet fluid requirements, the volume of milk produced within this zone would be far in excess of fluid requirements during the period of heavy production. For example, if the volume of milk produced during the peak production period were 40 percent above that produced in the low production period, the milk shed would be markedly contracted, about 40 percent in area if the density of production were constant throughout the area, but more than this if, as is often the case, the density of milk production declines as distance from market increases.

Assuming that the price of milk during the low production period were \$2.05 f.o.b. city, and the farm price structure the same as that indicated in Figure 5, the f.o.b. market price during the period of high production would be less than the f.o.b. market price during the season of low production by an amount equal to the saving in transportation costs involved in securing the supply of milk closer to the market during the flush period, and would vary between these limits during the year, depending upon the extent of the area wherein the volume produced was needed to meet fluid requirements. The farm prices would vary in the same manner, being equal to f.o.b. market prices less the cost of transporting milk to the city.

There are several factors, however, that operate to cause distributors to secure their milk from the same area throughout the year, rather than expanding and contracting the geographical scope of their operations to secure only that milk needed to meet fluid milk requirements. It is a matter of grave concern to the distributor that he be assured of a volume of milk sufficient to meet his market needs. Therefore, the risk involved in dropping a source of supply during the season of flush production, when it is practically certain

that that source will be needed during the season of low production, is a factor operating to check such action, since the distributor can never be certain that some competitor will not immediately furnish the shippers he dropped with an outlet for their milk, thereby forcing him to seek even more distant sources of supply during the season of low production.

Another factor of importance in this connection is that related to the costs of procuring milk from a rather constant area, as compared to the cost of procuring milk from an area that varies markedly throughout the year both in geographical extent, and the number of individual sources of the raw material. It undoubtedly costs less to procure milk from an area that stays rather constant with respect to geographical extent and number of producers, than from an area that varies markedly throughout the year in geographical extent and number of producers. Some of the savings are: (1) there are fewer field men needed to contact producers and secure their patronage, (2) bookkeeping and office expense is lower due to the fewer number of producers for whom accounts must be kept, statements must be prepared, and to whom payments must be made, (3) fewer laboratory tests have to be made, resulting in savings in laboratory technician labor costs, laboratory supplies, etc., (4) fewer individual containers have to be handled, involving savings in receiving labor, can washing, and sampling, and (5) there is less cost involved in furnishing various services to producers. It appears, then, that distributors can afford to pay producers a premium for evenness of production, so that they may, through the payment of such premium, secure the volume of milk needed by them to meet their fluid milk requirements from an area smaller in extent geographically, and in numbers of individual sources of supply, rather than securing their supply from an area that contracts and expands markedly as production decreases and increases seasonally. The amount of the premium distributors can afford to pay in this connection is the difference in the costs of procuring their milk supply from an area that remains practically constant in geographical extent and in number of individual sources of supply, and the cost of procuring milk from an area that varies markedly in geographical extent and the number of producers from whom milk is purchased.

There is another factor that exerts a tendency to cause the distributor to pay producers a premium for evenness in production. It has been pointed out previously that a volume of milk perhaps 10 percent in excess of average daily sales must be brought to market to meet daily variations in the volume of milk sold to consumers as fluid milk. In order to handle this volume of excess milk, which might be termed the daily operating reserve, the distributor has to integrate a by-product

enterprise with the main enterprise, or find some other channel of disposal. However, as far as this operating reserve is concerned, it is of such constant volume^{9/} that efficient methods of disposal as manufactured products can be developed. It is the marked variation in the seasonal excess and the difficulty of handling it efficiently that is an important factor in leading distributors to endeavor to secure a more even volume of supplies. This arises because more efficient methods of handling the excess can be developed when the supply is constant than when it varies markedly. Thus, during the season of flush production the distributor has to convert to other uses, or someone else does it in his stead, a volume of milk that may be several times as great as the volume so converted during the season of low production. This may be demonstrated by reference to some assumed figures, as follows:

1. The volume of milk sold daily as fluid milk throughout the year is 10,000 pounds.

2. The volume of milk brought to market is 11,000 pounds (10 percent of average daily sales needed to meet daily variations in fluid milk sales) in the season of low production and 14,000 pounds during the season of flush production.

The volume of milk that is diverted to uses other than fluid milk is therefore 1,000 pounds per day during the season of low production and is 4,000 pounds per day during the flush period, or 3,000 pounds greater than during the low period. This is entirely a seasonal excess (3,000 pounds of the 4,000), and represents an increase in the output of products other than fluid milk of 300 percent. Of course, under actual conditions, the increase in the volume of milk diverted to uses other than fluid during the flush season will be dependent upon the actual seasonal variation in production, which will, in some cases, be greater, and in other cases less, than indicated in the above example.

The seasonal excess in production therefore raises serious questions as to how it may be handled efficiently. It undoubtedly costs far more to handle a volume of excess milk that fluctuates markedly from season to season, as does a seasonal excess, than it costs to handle a volume of excess milk that remains rather constant from season to season. This is due to the fact that equipment, and in many cases labor, must be available to handle a peak load far in excess of the load during the period of low production when only a small volume of milk, equal to about 10 percent of average daily sales,

^{9/} Assumed, but practically all available data indicate that it is actually quite constant.

is converted to uses other than fluid milk. The distributor, therefore, can afford to pay a premium for evenness of production in addition to that already noted, the size of the premium being approximately equal to the difference in costs involved in handling a constant volume of excess (the operating reserve) as compared to handling a widely fluctuating volume of excess milk (the seasonal excess).

The foregoing indicates that distributors are able to pay a premium for evenness in production. It appears that it would be a matter of indifference to distributors whether they paid a given sum of money, including premiums for evenness of supply, to secure a particular volume of milk, or paid a sum of money about equal to the former for a similar volume of milk, the latter sum, however, being paid partly to producers delivering an uneven volume of milk, and partly for extra costs involved in procuring milk from an irregular area. In the former case, the farmer gets a higher percentage of the total volume of money expended for milk purchases and operating costs by the distributor than in the latter case, but total costs to the distributor remain about the same. It is probable that it is a matter of indifference to distributors whether they pay out a given sum of money in the one manner or the other. If distributors elect to secure their milk supply without paying producers a premium for evenness in production, it is evident that the seasonal variation in producers' prices would be quite marked.

It is, obviously, more economical to secure milk that is to be sold as fluid milk from sources near the market and to process the seasonal excess into milk products other than fluid milk at points outside the area wherein production is just necessary to meet fluid requirements, since the cost of transporting the fluid milk equivalent of manufactured dairy products from any given point is much greater than transporting such products to market in finished form. Of course, the extent of the saving will depend upon the size of the area and the like. Thus, during the period of flush production, fluid milk would be drawn from a point much nearer to market (depending upon the seasonality in production and relative density of production throughout the area) than during the season of low production. F.o.b. market prices for fluid milk during the year would vary directly with differences in costs of transporting milk from different points within the area. Thus, if milk is transported only 50 miles during the flush period and 100 miles during the low period, f.o.b. market prices, assuming transportation costs of 1 cent per hundredweight per mile, would vary within a 50-cent range during the year, being 50 cents higher during the period of low production than in the period of high production. Farm prices would vary in the same manner, being equal to f.o.b. market prices less transportation costs.

If, however, milk is brought to the market in fluid form and is then diverted to more concentrated forms such as cream, evaporated milk and butter, the product equivalent of such milk will sell at prices f.o.b. the market equal to the price at which the product can be shipped to the market from distant areas. Thus, if the butter equivalent of milk can be brought to the market from distant sources for \$1.00 f.o.b. the market (farm price plus transportation costs on the butter equivalent of 100 pounds of milk), the butter equivalent of milk brought to the city in fluid form will sell for only \$1.00 f.o.b. the market. The farm price of such milk would be materially less than \$1.00 per hundredweight. For example, if milk is shipped 50 miles and transportation costs are 1 cent per hundredweight per mile, the cost of transporting a hundredweight of such milk is 50 cents. If the product equivalent of such milk sells for \$1.00 f.o.b. the market, then the farm price of such milk would be 50 cents. Of course, if such milk is shipped any great distance as fluid milk, the product equivalent f.o.b. the market may not sell for enough to more than cover transportation costs from the farm to the market. Therefore, if milk is shipped to the market in fluid form for any appreciable distance and then converted to more concentrated products, farm prices for fluid milk are decreased appreciably. Under these conditions the seasonal variation of prices paid producers would be much more pronounced than that obtaining under the conditions treated previously.

G. The price structure, decentralized processing, special quality requirements for fluid milk - variations in production.

The seasonal variation in prices to producers would be even more marked than under the conditions treated previously if there were higher quality requirements for milk produced for use as fluid milk than for milk produced for use in other products.

This can be demonstrated quite readily by reference to the following example wherein it is assumed that (1) distributors bring to the market only that milk needed to meet their fluid requirements, which are assumed to be constant; (2) the area from which the fluid milk is drawn is contracted and expanded inversely to the seasonal variation in production; (3) distributors contract with producers to take their milk only for the periods wherein it is needed (obviously, under this sort of an arrangement the milk of some producers would be used as fluid milk all of the time while that of others would be so used at only certain specified seasons in the year); (4) the cost

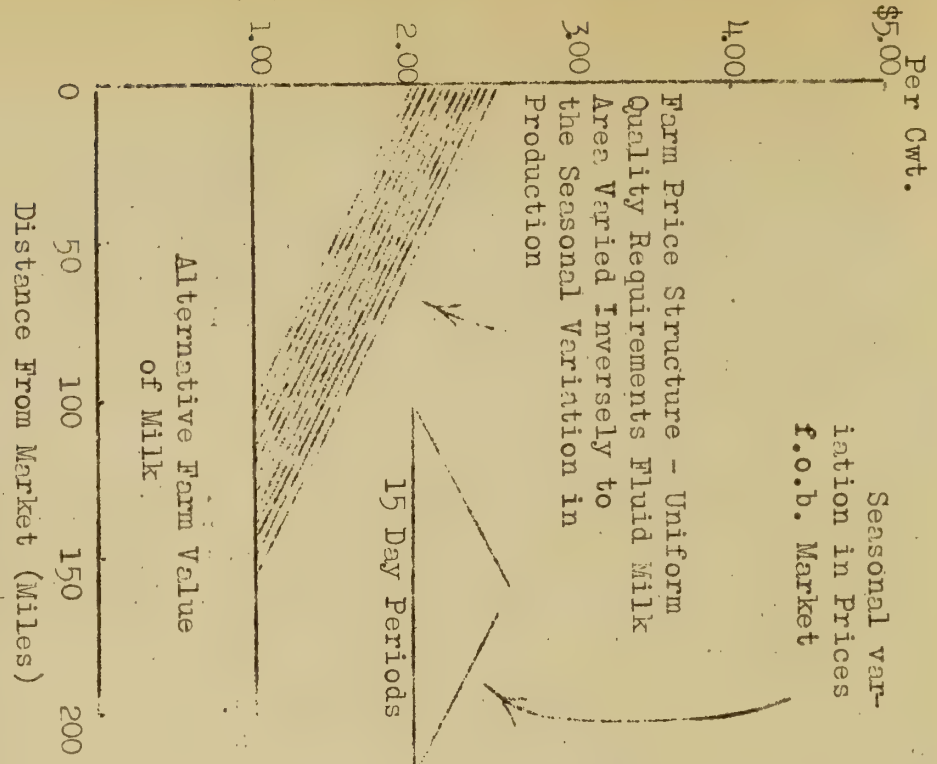
of meeting sanitation requirements, if all milk were sold as fluid milk during the year, would be 20 cents per hundredweight per producer; (5) the alternative farm value of milk sold for any other purpose is \$1.00 per hundredweight; (6) transportation costs vary uniformly with distance, at one cent per hundredweight per mile; (7) during the season when the milk of producers in outlying areas is not needed for fluid milk uses, there are plants available for manufacturing it into other dairy products.

Under these circumstances the total yearly cost of meeting fluid milk requirements for outlying producers, or, rather, for those producers who sell their milk as fluid milk for a short period during the year, would have to be covered in a much higher farm price^{10/} for the months during which they sell their milk as fluid milk. Under these assumptions, a producer selling his milk as fluid milk during the entire year would incur only 20 cents per hundredweight additional expense for meeting sanitation regulations. On the other hand, the producers who sold milk as fluid milk one month of the year would incur equal expenses over the entire year, or approximately twelve times as great per unit for the month during which such milk is sold as fluid milk. Thus, during the season of low production the farm price must be sufficient to cover, during one month, the entire cost of meeting sanitation regulations for the entire year, which, in the assumed case, would amount to approximately \$2.40 per hundredweight above the alternative use value for milk at the farm. The operation of this factor is depicted graphically in Figure 8.

Under these assumptions the f.o.b. city price (farm price plus transportation costs) ranges from \$2.20 per hundredweight during the month of high production to \$4.95 per hundredweight during the month of low production. If, as assumed, distributors purchase a uniform quantity of milk per month, the weighted average price would be approximately \$2.90 per hundredweight. If, however, production within the area within 100 miles of the market (see Figure 8) were uniform from month to month at a level equal to production during the month of high production obtaining in the example set forth above, the f.o.b. market price throughout the year would be \$2.20 per hundredweight as compared to the weighted average price of \$2.90 per hundredweight prevailing under the conditions as set forth in the previous example. If, therefore, the distributor

10/ Of course, part of the expenses of producing milk in conformance with the sanitation regulations is fixed, and part of them is variable. This introduces an additional complexity, and probably operates to change the seasonal price curve from that set forth in this analysis. However, it does not appear necessary to develop this point further for the purposes of this paper.

F.O.B. Market Price of Milk Per Hundredweight



F.O.B. Market Price of Milk Per Hundredweight

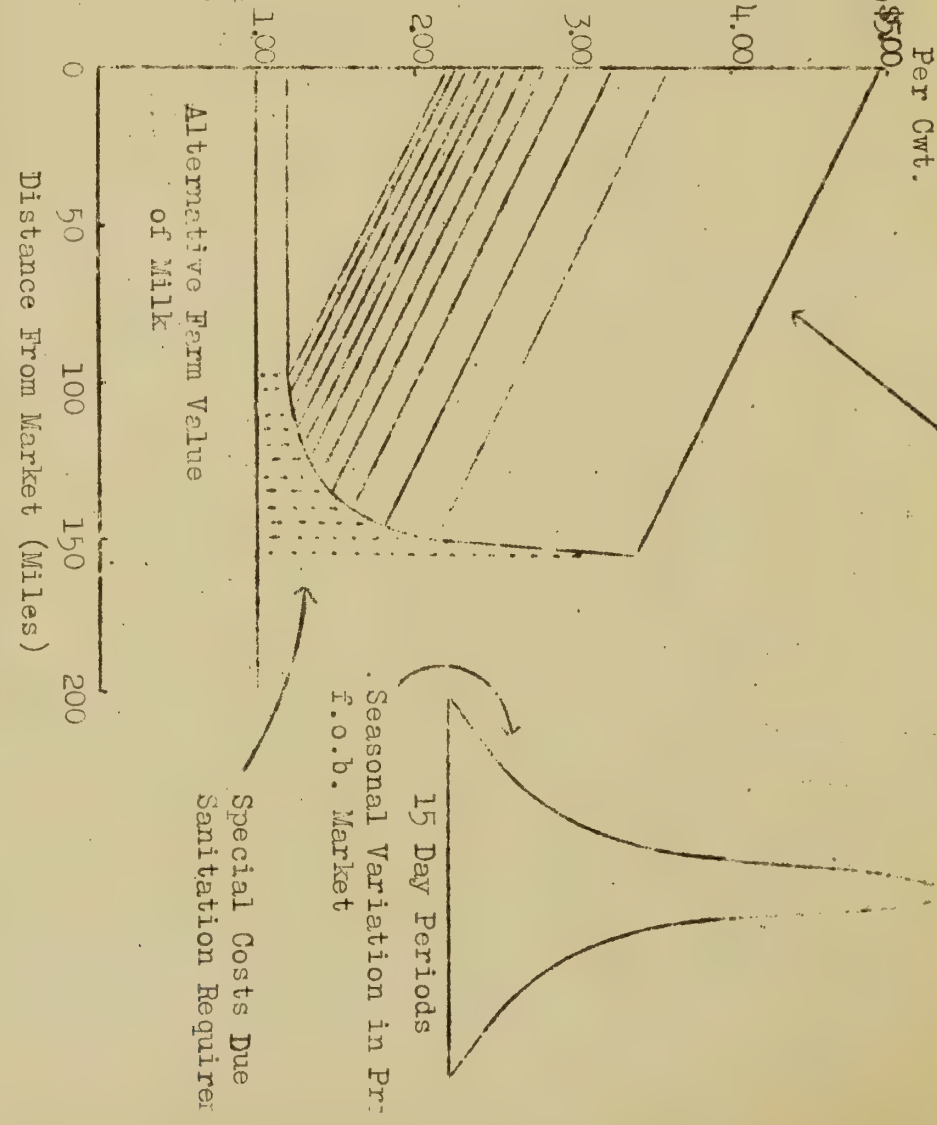


FIGURE 8. - THE PRICE STRUCTURE FOR FLUID MILK WITH DECENTRALIZED PROCESSING, SPECIAL QUALITY REQUIREMENTS FOR FLUID MILK ASSUMED.

could procure his milk supply from producers who produce a constant volume of milk throughout the year, it is to his best interest to do so, since he could secure his milk supply for less total cost than would be the case otherwise. ^{11/}

It should be noted that the marked seasonal variation in prices, which in any particular market would be different from that set forth above, depending upon the degree to which conditions in the market and the supply area vary from those assumed in the example, would in time be partially corrected by producers within the area changing their seasonal output curves in order to sell a larger volume of milk during the period when prices are seasonally high. However, it would be greatly to the advantage of some producers to shift their seasonal output curves, and little if any to others, depending upon the type of farm organization and operation followed by each.

It has already been indicated that distributors can afford to pay producers in such a manner that evenness in production is encouraged, due to the economies in procurement costs in securing milk from an area that is rather constant geographically and in number of individual sources of supply rather than an area that varies markedly in geographical extent and in the number of individual sources of supply. Also, it has been indicated that the economies involved in handling a minimum and rather constant volume of excess milk furnish an incentive for distributors to pay producers in such a manner that evenness in production is encouraged, in addition to the incentive noted above.

Heretofore it has been assumed, for purposes of analysis, that there is no difference between the seasonal production curves of individual producers. This assumption is now discarded and the analysis focused upon conditions more nearly in accordance with those that prevail in actual markets. It is well recognized that there are marked differences between the seasonal production curves of different groups of producers as well as individual producers. ^{12/} Thus, in any particular milk market there are many producers who produce milk practically in accordance with fluid milk needs, while others do not.

^{11/} For purposes of presentation and emphasis, this example has been exaggerated.

^{12/} Lininger, F. F., Pennsylvania State College, Agricultural Experiment Station Bulletin No. 231, also based on unpublished data in the files of the Dairy Section.

A brief consideration of the types of distributors and processors operating within any particular milk shed will now be given in order to bring into the analysis the conditions which, taken in conjunction with those set forth in the two preceding paragraphs and in Part III of this paper, suffice to explain why milk suitable for consumption as fluid milk is brought to market, one part of which sells for one price, another part for another, etc., in short, the development of a system of class prices.

In almost any milk market (except as is the case in those small villages and towns where practically all of the milk is distributed by producers) where the economy of the market has developed to the point that distributors have become specialized, different degrees of specialization obtain between distributors. Some distributors sell only fluid milk and/or cream, others sell only fluid milk and/or cream and a relatively small volume of manufactured by-products (butter, cheese, ice cream, etc.) and still others sell some fluid milk and cream and sell a relatively large volume of manufactured dairy products. Within the same area, other processors produce and sell manufactured dairy products entirely. In other words, all degrees of enterprise combinations are to be found, ranging from the highly specialized fluid milk distributor to the relatively as highly specialized manufacturer of manufactured dairy products. The reason for such specialization is, obviously, that the economies in organization and operation gained through specialization are quite marked. This point needs no further proof than that evident to anyone who observes the present organization and operation of industry, both agricultural and non-agricultural.

Under the above conditions, it may appear that it is to the interest of all fluid milk distributors and all processors of manufactured dairy products within a particular area to pay producers in such a manner that evenness in production is encouraged rather than for specialized fluid milk distributors to do this alone. This is true to a certain extent. However, milk is bulky and perishable and the storage of milk is not economically feasible. On the other hand, manufactured dairy products can be and are stored for relatively long intervals. Thus, manufactured dairy products are produced in largest volume during the spring and summer months and are stored until they are moved into consumption. This tends to even out the seasonal variation in the prices of manufactured dairy products. Under these conditions the premium that could be paid producers of milk for use in manufactured dairy products to encourage evenness in supply would be equal to the cost of storage from the flush production period until the product moves into consumption and the savings realized in manufacturing costs when the volume of product

produced throughout the year is constant rather than varying. In addition, the supply areas of individual manufacturing plants are, in most cases, much smaller than the supply areas of individual fluid milk plants so that transportation costs do not affect farm prices seasonally to as great an extent as is the case with fluid milk. Also, there are, in many cases, few sanitation requirements with respect to the production, care and handling of milk produced for use in the production of manufactured dairy products; and, in those cases where there are sanitation requirements with respect to such milk, they are rarely, if ever, of such nature that farm production costs are increased markedly. Thus, sanitation requirements for milk produced for use in the production of manufactured products do not operate to increase the seasonal variation in the price of such milk to any appreciable degree, certainly, in any case, to a much lesser extent than in the case of milk produced for use as fluid milk. These considerations suffice to explain in a large measure why pricing systems pointed to encouraging evenness in production have not developed with respect to milk produced for use in the production of manufactured dairy products.

In view of the foregoing, it appears that there is a wide range in the incentive of different types of distributors to pay producers in a manner that encourages evenness in production. For specialized fluid milk distributors this incentive is quite strong and diminishes in strength in relation to the diminution in the degree of specialization of distributors until, in the case of manufacturers of manufactured dairy products, there is little incentive to purchase milk from producers for evenness so that evenness in production is encouraged. Under these conditions fluid milk distributors will compete with each other to secure the patronage of those producers who produce a rather constant volume of milk throughout the year so that these producers become associated with specialized fluid milk distributors. Further, producers who produce a more variable volume of milk will become associated with less specialized distributors. Stated in other terms, when producers are classified on the basis of their relative seasonality of production, they will tend to become directly associated with distributors in accordance with the relation between the relative constancy of production of different classes of producers and the relative strength of the incentive of different classes of distributors to secure an even volume of supply of the raw material. Thus, within a milk shed different producers will receive different prices for milk, such differences, after adjustments for location differences, being due to relative differences in the seasonal variation of production of different producers. Under these circumstances and providing economic forces have time to work out their full effects, producers who produce a relatively constant volume of milk throughout the year will receive

higher prices than those producers who produce a relatively more variable volume of milk throughout the year. Furthermore, the producers who produce a relatively constant volume of milk throughout the year will tend to be associated with highly specialized fluid milk distributors (highly specialized in the sense that the operating unit is engaged almost entirely in the distribution of fluid milk), while those who produce a relatively more variable quantity will be associated with distributors who are less highly specialized (in the sense noted above).

Heretofore, no seasonal variation in consumption of fluid milk has been assumed. The next step in the analysis is to examine how (1) various factors operate to establish retail prices for fluid milk at a practically uniform level throughout the year and, with small seasonal variation in demand, lead to the development of the seasonal excess, and (2) the manner in which the bargaining arrangements between producers and distributors affect the price structure for milk within a milk shed.

PART III

The Utilization of Milk in a Market as Influenced by the Nature of the Demand for Milk.

Heretofore the analysis has been developed on the assumption that there were no variations in the amount of milk sold as fluid milk in the market from day to day and season to season, hence, granting seasonal variation in production, it followed that, during the period of the year when production exceeded consumption, a portion of the milk produced for use as fluid milk in a particular area had to be diverted to uses other than fluid milk. This assumption is now dropped, and the analysis is focussed upon the determination of (1) whether there are variations in the volume of milk sold in the market from day to day and season to season, (2) the factors that account for such variations, if any, and (3) whether such variations are or normally may be expected to be of sufficient amplitude to keep the total volume of milk sold as fluid milk in the market equal to the volume of milk produced for use as fluid milk in the area supplying the market. A solution of the problems noted above is to be found largely in a consideration of the nature of the demand for fluid milk and the manner in which milk is distributed to consumers.

When considered in light of the usual supply and demand analysis of the factors affecting the price of any particular commodity, it might be expected that retail milk prices to consumers would be adjusted or changed from day to day and week to week as changes took place in the supply and demand situation. Stated differently, if, on a particular day of the week or during any particular week, milk supplies increased or decreased, it might be expected that retail milk prices (assuming no change in demand) would vary inversely to the changes in supplies, especially in view of the fact that milk is a highly perishable product and cannot be stored advantageously.

As far as actual supply and demand conditions are concerned, there are relatively large day to day variations in demand ^{13/} and relatively small day to day variations in supply. Under these circumstances, it might appear that there would be marked variation in the retail price of milk from day to day. However, it is probable that this pricing procedure would necessitate a type of market organization or mechanism whereby buyers and sellers would meet, or through which buyers' day to day demand schedules and sellers' day to day schedules of reservation prices would

^{13/} This point is developed in more detail later.

be made known and would operate to adjust prices in accordance with the day to day supply and demand situation. This type of market organization or mechanism would be somewhat analogous to the present produce exchanges. However, such procedure would be markedly different from the present procedure through which day to day retail prices not only of milk but of many other products are established.

Milk is generally distributed to consumers early in the morning, and numerous milk routes are necessary in order that customers be reached. A driver on a milk wagon cannot ascertain what the demand for milk will be on his route until he has completed deliveries. Thus, as a practical matter, it is impossible for him to adjust his prices in accordance with the demand situation as he finds it. The same considerations apply to the distributive enterprise as a whole. If the demand schedules of consumers on each milk route, and the aggregate demand schedules of consumers purchasing from each distributor and for the market as a whole, were known and accurately predictable from day to day, then the dealer could (in theory) quote prices each day on the basis of day to day changes in the day to day supply and demand situation. As a practical matter this procedure would be extremely unworkable. The highly technical nature of the analysis that would be necessary if such procedure were to be followed, the cost of such precise analysis (which would probably have to be detailed enough to allow the determination and forecasting of the demand schedules on many, if not all, milk routes), and the partially indeterminate nature of the results secured would preclude following the procedure outlined. The only practical procedure is for the distributor to quote prices for a longer period of time, rather than to quote prices daily. This is the procedure distributors actually follow and, under these circumstances, day to day variations in the demand for fluid milk (day to day variation in supplies ^{14/} are negligible) are manifest in variations in day to day purchases by consumers at a constant price, rather than being manifest in day to day variations in price.

It may appear, when weekly and monthly periods are considered, that retail prices would change in response to weekly and monthly changes in the supply and demand situation. However, retail prices remain constant for relatively long periods. (See Table 1.) The reasons for retail prices remaining constant for relatively long periods of time, rather than being reduced so that the seasonal increase in the volume of milk produced for use as fluid milk which takes place during the summer months in most milk market supply areas is moved into consumption as fluid milk, will now be examined. The explanation of practically constant retail prices of fluid milk is to be found mainly in the nature of consumer's response to changes in prices and, arising mainly therefrom, the sales and price policy followed by distributors.

^{14/} This is not to say that supplies do not change from day to day, since there is a trend in daily supplies that is seasonal in character. However, this trend is small when considered on a daily basis.

Table 2. Number of periods during which retail price of milk remained unchanged for a year or more in principal milk markets.

| Market | Period during which price remained unchanged: | | | | | Percentage which the period during which price remained constant for a year or more is of total months in entire period |
|--------------|---|--------------|--------------|----------------|----------------------|---|
| | 13-24 months | 25-36 months | 37-48 months | Over 48 months | Period years covered | |
| New York | 1 | 2 | | 1 | 1909-31 | 46.4 |
| Boston | | 1 | | | 1907-31 | 11.3 |
| Philadelphia | 1 | 2 | | 1 | 1907-31 | 67.7 |
| Chicago | 1 | | 1 | 2 | 1907-31 | 71.7 |
| Baltimore | 5 | 1 | | 1 | 1909-33 | 61.3 |
| Washington | 4 | 1 | | | 1909-31 | 31.2 |
| Minneapolis | 4 | 1 | | | 1909-30 | 35.2 |
| St. Paul | 2 | 1 | | | 1914-31 | 28.2 |
| St. Louis | 1 | 1 | | 1 | 1909-31 | 52.2 |
| Atlanta | 5 | | 1 | | 1907-31 | 40.3 |
| Omaha | 3 | | | | 1909-31 | 22.1 |
| Denver | 2 | 1 | | 1 | 1909-31 | 41.7 |
| Los Angeles | 5 | | 1 | 1 | 1909-31 | 64.9 |

Based on data secured from reports of the Bureau of Labor Statistics, United States Department of Labor.

Statistical investigations have in general indicated that the demand for fluid milk by consumers is very inelastic; that is, that the change in the quantities of milk taken, following increases or decreases in price, is relatively very small. Two published studies ^{15/} for the Chicago and New York markets indicate that, during the period covered by the studies, when consumers recognized the necessity for changes in the retail price of milk, a one cent change in the retail price of milk per quart had a very slight immediate effect on sales and this effect was considerably diminished after five or six weeks.

Evidence relative to the influence of price changes upon milk sales has been obtained from an examination of the milk sales by distributors purchasing from cooperative associations in Baltimore, Maryland, Boston, Massachusetts, and the Twin Cities, Minnesota. In these cities the cooperative associations have a considerable share of the business of the market and changes in their sales are no doubt representative of the market as a whole. These data were analyzed by comparing the sales in the calendar month preceding the price change with the sales in the calendar month following the price change, ^{16/} after adjusting for the influence of the average seasonal variation in sales. Indexes of seasonal variation were calculated by the median-link~~-~~relative method, omitting the months in which price changes occurred. The compared months have been adjusted by dividing each by its corresponding seasonal index. The results of the analysis are given in Tables 2 to 4.

Examination of the data shows that usually a change in price results in an opposite but much smaller change in sales. In Boston, there were fifteen price changes (eight decreases and seven increases) during the period March 1922 to September 1931; in Baltimore there were only two changes, one decrease and one increase; and in the Twin Cities market there were seven decreases and three increases. Changes in sales in Boston were directly associated with changes in prices in four cases instead of being inversely associated as would be the case if other conditions remained the same. These four exceptions followed price changes occurring in July 1927, April 1928, July 1929 and August 1931; and there were four exceptions in the Twin Cities market in March 1926, November 1927, January 1931 and March 1932.

^{15/} Ross, H. A. The Marketing of Milk in the Chicago Dairy District. Ill. Agr. Exp. Sta. Bull. 269, pp. 503-510, 1925.
Ross, H. A. Some Factors Affecting the Demand for Milk and Cream in the Metropolitan Area of New York. U. S. Dept. of Agr. Tech. Bull. 73, pp. 44-47, 1928.

^{16/} In some cases prices changed each month for two or more consecutive months. In these cases, the sales in the calendar month preceding the price change were compared to the calendar month following the last month in the series of consecutive monthly price changes.

Table 3. Changes in sales of fluid milk following changes in retail prices, Baltimore, Maryland, September 1926 to May 1931, inclusive.

| Month | Sales (30-day month basis) <u>1/</u> | Index of seasonal varia- tion <u>2/</u> | Seasonally adjusted sales <u>3/</u> | Retail prices per quart <u>4/</u> |
|---|--|---|---|---|
| | : 1,000 gallons : | Percent | : 1,000 gals : | Cents |
| September 1926 | : 1,544 : | : 100.5 : | : 1,536 : | : 13 : |
| November 1926 | : 1,510 : | : 101.0 : | : 1,495 : | : 14 : |
| Percent change | : : | : : | : -2.7 : | : +7.7 : |
| March 1931 | : 1,431 : | : 100.2 : | : 1,428 : | : 14 : |
| May 1931 | : 1,462 : | : 101.4 : | : 1,442 : | : 12 : |
| Percent change | : : | : : | : +1.0 : | : -14.3 : |
| Absolute aver- age percent change <u>5/</u> | : : | : : | : 1.8 : | : 11.0 : |

1/ Table 18 Appendix.

2/ Table 17 Appendix.

3/ Computed from Columns 1 and 2.

4/ Table 19 Appendix.

5/ Represents average of percentage changes without regard to signs.

Table 4. Changes in sales of fluid milk following changes in retail prices, Boston, Massachusetts, March 1922 to September 1931.

| Month | Sales :(30-day month basis) <u>1/</u> | Index of seasonal variation <u>2/</u> | Seasonally adjusted sales <u>3/</u> | Retail prices, per quart <u>4/</u> |
|----------------|--|---|---|---------------------------------------|
| | Mill. lbs. | Percent | Mill. lbs. | Cents |
| March 1922 | 22.0 | 98.6 | 22.3 | 13.5 |
| May 1922 | 22.8 | 99.5 | 22.9 | 12.5 |
| Percent change | | | +2.7 | - 7.4 |
| June 1922 | 23.9 | 102.8 | 23.2 | 12.5 |
| August 1922 | 22.9 | 103.1 | 22.2 | 13.5 |
| Percent change | | | -4.3 | + 8.0 |
| March 1923 | 23.0 | 98.6 | 23.3 | 14.5 |
| May 1923 | 23.6 | 99.5 | 23.7 | 13.5 |
| Percent change | | | +1.7 | - 6.9 |
| June 1923 | 25.6 | 102.8 | 24.9 | 13.5 |
| September 1923 | 23.2 | 100.5 | 23.1 | 14.5 |
| Percent change | | | -7.2 | + 7.4 |
| October 1923 | 23.6 | 100.4 | 23.5 | 14.5 |
| May 1924 | 25.2 | 99.5 | 25.3 | 12 |
| Percent change | | | +7.7 | -17.2 |
| June 1924 | 26.2 | 102.8 | 25.5 | 12 |
| October 1924 | 24.1 | 100.4 | 24.0 | 14.5 |
| Percent change | | | -5.9 | +20.8 |
| February 1925 | 24.6 | 97.6 | 25.2 | 14.5 |
| April 1925 | 25.2 | 97.2 | 25.9 | 13.5 |
| Percent change | | | +2.8 | - 6.9 |
| April 1925 | 25.2 | 97.2 | 25.9 | 13.5 |
| June 1925 | 28.0 | 102.8 | 27.2 | 13 |
| Percent change | | | +5.0 | - 3.7 |
| June 1925 | 28.0 | 102.8 | 27.2 | 13 |
| September 1925 | 25.7 | 100.5 | 25.6 | 14.5 |
| Percent change | | | -5.9 | +11.5 |

Table 4. (Continued)

| Month | Sales (30-day month basis) <u>1/</u> | Index of seasonal variation <u>2/</u> | Seasonally adjusted sales <u>3/</u> | Retail prices, per quart <u>4/</u> |
|--|---|---|---|---------------------------------------|
| | Mill. lbs. | Percent | Mill. lbs. | Cents |
| October 1926 | 28.4 | 100.4 | 28.3 | 14.5 |
| February 1927 | 27.8 | 97.6 | 28.5 | 14 |
| Percent change | | | +0.7 | - 3.4 |
| June 1927 | 29.0 | 102.8 | 28.2 | 14 |
| March 1928 | 29.5 | 98.6 | 29.9 | 15.5 |
| Percent change | | | +6.0 | +10.7 |
| March 1928 | 29.5 | 98.6 | 29.9 | 15.5 |
| May 1928 | 29.5 | 99.5 | 29.6 | 14.5 |
| Percent change | | | -1.0 | - 6.5 |
| June 1928 | 29.9 | 102.8 | 29.1 | 14.5 |
| September 1928 | 29.4 | 100.5 | 29.3 | 15.5 |
| Percent change | | | +0.7 | + 6.9 |
| November 1930 | 29.1 | 100.7 | 28.9 | 15.5 |
| March 1931 | 30.2 | 98.6 | 30.6 | 12.5 |
| Percent change | | | +5.9 | -19.4 |
| July 1931 | 31.6 | 106.8 | 29.6 | 12.5 |
| September 1931 | 30.1 | 100.5 | 30.0 | 13.5 |
| Percent change | | | +1.3 | + 8.0 |
| Average percent- age change <u>5/</u> | | | -5.8 | +11.9 |
| Average percent- age change <u>6/</u> | | | +3.8 | - 9.3 |
| Absolute average percentage change <u>7/</u> | | | 4.5 | 10.2 |

1/ Table 20 Appendix.

2/ Table 17 Appendix.

3/ Computed from 1/ and 2/.

4/ Table 21 Appendix.

5/ Represents average of percentage increases in price that were associated with percentage decreases in sales.

6/ Represents average of percentage decreases in price that were associated with percentage increases in sales.

7/ Represents average of percentage changes in price or in sales, without regard to signs, that were associated with opposite changes in sales or in price.

Table 5. Changes in sales of fluid milk following changes in retail prices, Twin Cities, Minnesota, March 1924 to August 1932.

| Month and year | Sales 30-day-month basis <u>1/</u> | Index of seasonal variation <u>2/</u> | Seasonally adjusted sales <u>3/</u> | Retail prices per quart <u>4/</u> |
|--|--|---|---|---|
| | Thousand pounds | Percent | Thousand pounds | Cents |
| March, 1924 | 11,279 | 101.4 | 11,123 | 11.5 |
| May, 1924 | 11,720 | 99.5 | 11,779 | 10 |
| Percent change | | | + 5.9 | - 13.0 |
| July, 1924 | 11,871 | 98.0 | 12,113 | 10 |
| September, 1924 | 11,788 | 100.1 | 11,776 | 11 |
| Percent change | | | - 2.8 | + 10.0 |
| August, 1925 | 12,570 | 99.1 | 12,684 | 11 |
| October, 1925 | 12,492 | 102.5 | 12,187 | 12 |
| Percent change | | | - 3.9 | + 9.1 |
| December, 1925 | 11,861 | 98.0 | 12,103 | 12 |
| March, 1926 | 12,246 | 101.4 | 12,077 | 11 |
| Percent change | | | - 0.2 | - 8.3 |
| August, 1927 | 12,111 | 99.1 | 12,221 | 11 |
| November, 1927 | 12,608 | 101.7 | 12,397 | 12 |
| Percent change | | | + 1.4 | + 9.1 |
| December, 1929 | 12,980 | 98.0 | 13,245 | 12 |
| February, 1930 | 13,571 | 101.0 | 13,437 | 11 |
| Percent change | | | + 1.4 | - 8.3 |
| October, 1930 | 13,543 | 102.5 | 13,213 | 11 |
| January, 1931 | 12,961 | 98.8 | 13,118 | 10 |
| Percent change | | | - 0.7 | - 9.1 |
| November, 1931 | 12,724 | 101.7 | 12,511 | 10 |
| January, 1932 | 12,203 | 98.8 | 12,351 | 9.5 |
| Percent change | | | - 1.3 | - 5.0 |
| January, 1932 | 12,203 | 98.8 | 12,351 | 9.5 |
| March, 1932 | 12,543 | 101.4 | 12,361 | 8.5 |
| Percent change | | | + 0.1 | - 10.5 |
| June, 1932 | 12,534 | 98.1 | 12,777 | 8.5 |
| August, 1932 | 12,717 | 99.1 | 12,332 | 8 |
| Percent change | | | + 0.4 | - 6.3 |
| Average percentage: change <u>5/</u> | | | - 3.3 | + 9.6 |
| Average percentage: change <u>6/</u> | | | + 2.0 | - 9.5 |
| Absolute average percentage change <u>7/</u> | | | 2.4 | 9.5 |

1/ Table 22, Appendix.

2/ Table 17, Appendix.

3/ Computed from columns 1 and 2.

4/ Table 23, Appendix.

5/ Represents average of percentage increases in price that were associated with percentage decreases in sales.

6/ Represents average of percentage decreases in price that were associated with percentage increases in sales.

7/ Represents average of percentage changes in price or in sales, without regard to signs, that were associated with opposite changes in sales or in price.

These unusual cases occur in periods when business conditions were changing rapidly and appear to be adequately explained by changes in these conditions.

Data contained in the reports of the Market Administrators for the various markets operating under Federal licenses also provide some indication of the consumer response to price changes in these markets. Only those markets where Class I milk was defined as whole milk, sold or distributed for consumption as whole milk, and where the size of the sales area has remained constant are considered. These data have been received for such a short period that it was impossible to compute a satisfactory index of seasonal variation and adjust sales for seasonal variation, except where other sales data from the same market were available for earlier periods.

The results of this latter study must be interpreted with some caution since there are other factors than price which influence sales. Sudden changes in temperature influence the volume of milk sold. There is a seasonal variation in total fluid sales, which is in part influenced by the vacation movement, and this in turn is affected by the prosperity of the community. Moreover, in a period of several months in recent years business conditions and consumer incomes have changed materially. These considerations limit somewhat the significance of the results of the study. It is important to note, however, that the results supplement the results obtained in the other studies, showing that changes in price are associated with changes in fluid milk sales, and that the changes in prices are relatively much greater than the changes in sales. The data are shown in Table 5 and indicate that an average change of 3.4 percent in sales is associated with an average opposite change of 12.3 percent in price.

It appears from the foregoing that the demand for milk is highly inelastic, especially when retail price changes are relatively small. When price changes are relatively large, it is probable that the change in consumption may be somewhat greater than when the changes in the retail price are relatively small, although the change in sales is probably less than directly proportional to the change in price, although the data that are available relative to this point are inconclusive. ^{17/} Stated differently, while the demand for milk is less inelastic when large, rather than small, price changes are considered, the coefficient of elasticity of demand still appears to be considerably less than unity.

^{17/} See also Ross, H. A., Some Factors Affecting the Demand for Milk and Cream in the Metropolitan Area of New York, Technical Bulletin No. 73, U. S. Department of Agriculture.

Table 6. Summary of changes in sales and in prices in specified cities.

| Sales area and period | : Estimated aver- : age daily : Class I sales | : Retail delivery : price, per : quart |
|--|---|--|
| | : <u>Pounds</u> | : <u>Cents</u> |
| Boston: | | |
| April 1934 to September 1934 | : 1,618,000 | : 11 |
| October 1934 to February 1935 | : 1,592,000 | : 12 |
| Percentage change | : - 1.6 | : + 9.1 |
| March 1935 and April 1935 | : 1,576,000 | : 13 |
| Percentage change | : - 1.0 | : + 8.3 |
| Detroit: | | |
| April 1934 to June 1934 | : 1,221,000 <u>1/</u> | : 10 |
| July 1934 to February 1935 | : 1,167,000 <u>1/</u> | : 11 |
| Percentage change | : - 4.4 | : +10.0 |
| March 1935 | : 1,153,000 <u>1/</u> | : 12 |
| Percentage change | : - 1.2 | : + 9.1 |
| Evansville: | | |
| May 1934 to September 1934 | : 43,764 | : 9 |
| October 1934 to March 1935 | : 41,635 | : 9.5 |
| Percentage change | : - 4.9 | : + 5.6 |
| Grand Rapids: | | |
| August 1934 and September 1934 | : 127,123 | : 9 |
| October 1934 to March 1934 | : 127,208 | : 10 |
| Percentage change | : 0.0 | : +11.1 |
| Kalamazoo: | | |
| July 1934 to November 1934 | : 36,733 | : 10 |
| December 1934 to February 1935 | : 40,720 | : 8 |
| Percentage change | : +10.9 | : -20.0 |
| March 1935 | : 39,397 | : 10 |
| Percentage change | : - 3.2 | : +25.0 |
| Absolute average percentage change <u>2/</u> | : 3.4 | : 12.3 |

Tables 24 to 28, inclusive, appendix.

1/ Adjusted for seasonal variation.

2/ Represents average of percentage changes without regard to signs.

On the basis of the foregoing, it appears that it would require a very marked decrease in price in order that any appreciable seasonal increase in the volume of milk produced for use as fluid milk be moved into consumption as fluid milk in the market as a whole. It is rather generally recognized that changes in the prices received by producers that are associated with changes in retail prices are relatively greater than the changes in retail prices. This is due to the fact that some of the more important elements in the gross margin between the price received by producers and the price at which the milk is sold at retail (transportation costs, country station charges and the like) do not change with changes in volume; in other words, they are fixed charges per unit. This being the case, the seasonal variation in prices received by producers would be relatively greater than the seasonal variation in retail prices, which, as was pointed out before, would have to be quite marked in order that any appreciable seasonal increase in the production of milk produced for use as fluid milk within the supply area be consumed as fluid milk. Over a period of time, the market seasonal variation in prices received by producers would tend to be reduced, since producers would change the seasonality of their production in order to sell a larger volume of milk at the time of year when prices were seasonally high, and would reduce their sales during the period when prices were seasonally low. However, it would be greatly to the advantage of some producers to change the seasonality of their production and little, if any, to others, depending upon the type of farm organization and operation followed by each. Thus, given time for economic forces to work out their full effects, the seasonal variation in supplies and prices received by producers, and consequently the seasonal variation in retail prices, would be much less marked than would appear to be the case at first.

The second limitation to lowering prices on the basis of the seasonal increase in the volume of milk produced for use as fluid milk by any dealer is that, in order to hold the new customers later when supplies in the market are short, dealers would have to develop new sources of supply during the short season in order to have sufficient milk to meet the requirements of their larger business. These new sources involve an expense in development (see Part II, Section G) and may also have an equal or greater seasonal variation in production the following year. The alternative is to raise prices when supplies are short and thereby reduce the customer's takings or to fail to serve the added customer. Either of these latter procedures is sure to lead to dissatisfaction.

The foregoing facts and considerations suffice to explain in large part why retail prices of fluid milk tend to remain practically constant on a seasonal basis. Thus, instead of retail prices showing marked seasonal variation of such magnitude that the seasonal changes in volume of milk produced for use as fluid milk be moved into consumption as fluid milk, retail prices remain practically constant seasonally and seasonal changes in demand are reflected in greater or less takings of fluid milk, as the case may be, at the ruling level of prices. Such seasonal variations in demand are generally quite small, and are much less than the seasonal variation in the volume of milk produced for use as fluid milk that obtains in most milk market supply areas. (See Table 17, Appendix.) ^{18/} Thus, unless the volume of milk produced for use as fluid milk is equal to fluid milk requirements on a seasonal basis, the seasonal increase in the volume of milk produced for use as fluid milk is diverted to uses other than fluid milk. Stated differently, the seasonal increase in the volume of milk produced for use as fluid milk becomes a seasonal excess over fluid milk requirements. In the next part of the analysis of the price structure for milk within a milk shed, an explanation of the development of class prices, or the classified price plan of payment for milk by distributors, will be set forth.

^{18/} See also Ross, H. A., The Marketing of Milk in the Chicago Dairy District, Ill. Agr. Exp. Sta. Bull. No. 269, and Ross, H. A., Some Factors Affecting the Demand for Milk and Cream in the Metropolitan Area of New York, U. S. Dept. of Agr. Tech. Bull. No. 73.

Part IV

The Price Structure for Milk within a Milk Shed - The Development of Class Prices.

The analysis of the price structure for milk within a milk shed will now be focussed upon the manner in which class prices or, stated more precisely, the classified price plan of selling milk to distributors, develops in a milk market. At this point it is important to set forth as clearly as is possible in a short paper the difference between the classified price plan and the rating plan.^{19/} The classified price plan is a method of selling milk to distributors, while the rating plan is a method of prorating to producers the proceeds of sales to distributors. The classified price plan does not necessarily need to be complemented by the operation of a rating plan, and classified price plans are often used where no rating plan is in operation. On the other hand, the rating plan under certain forms of administration becomes in effect a classified price plan and a plan for prorating to producers the proceeds of sales to distributors. For example, in some markets, producers associations bargain for "base" and "surplus" prices; "bases" are established for individual producers for which "base" milk producers receive "basic" prices. Producers are shifted among distributors in such fashion that the total bases of producers delivering milk to any particular distributor are approximately equal to such distributor's sales of fluid milk. However, pricing milk to distributors in accordance with a classified price plan is usually more precise than that just noted, with a more strict accounting and pricing of milk according to use, and is not necessarily operated in conjunction with a base-rating plan.

For the purposes of this paper, the classified price plan is defined as a method of selling and pricing milk to distributors in accordance with the use made thereof, while the base-rating plan is defined as a method of prorating to producers the proceeds of sales to distributors.

It has already been demonstrated (see Part II) that, assuming little seasonal variation in the demand for milk, certain supply characteristics operate so that, given differences in individual producers' seasonal output curves, and providing that economic forces have time to work out their full effects, producers who produce a relatively constant volume of milk throughout the year will receive higher prices, other factors accounted for, than producers who produce a relatively more variable volume of milk throughout the year. Furthermore, the producers who produce a relatively constant volume of milk throughout the year will tend to become associated with highly specialized fluid milk distributors (highly specialized in the sense that the operating unit is engaged almost entirely in the distribution of fluid milk, while those who produce a relatively more variable quantity throughout the year will tend to

^{19/} Often called base-surplus, base-rating, and the like.

become associated with distributors who are less highly specialized (in the sense noted above). The assumption that there is little seasonal variation in the demand for milk was then examined, (Part III) and it was found that certain factors operate so that there is marked seasonal uniformity in retail fluid milk prices, and seasonal changes in demand, which are very small in most cases, are reflected in slight seasonal changes in the quantities of fluid milk consumed at practically constant prices, rather than seasonal changes in the quantities of milk consumed that are associated with seasonal changes in retail fluid milk prices. It is in the analysis of the seasonal behavior of retail fluid milk prices, and the effects such behavior would tend to have upon the prices received by producers, that the reasons for the development of the seasonal excess were ascertained.

Once the development of the seasonal excess has been demonstrated, the basis for the effort on the part of specialized fluid milk distributors to secure a uniform volume of milk throughout the year becomes apparent. Under these circumstances, the argument that specialized fluid milk distributors tend to secure milk to meet the needs of their fluid milk trade, which are practically constant seasonally, from producers who produce a relatively uniform volume of milk throughout the year, such producers receiving higher prices, other factors accounted for, than producers who produce a relatively more variable volume of milk throughout the year and, consequently, tend to become associated with less highly specialized distributors, applies with especial force.

It should be noted that it is not contended that distributors select producers who produce a relatively uniform volume of milk throughout the year at random throughout the milk shed. It is rather well recognized that, generally speaking, producers within a particular type of farming area have markedly similar seasonal output curves. Thus, a distributor who wishes to secure a uniform supply of milk throughout the year can usually operate in an area or areas where a fairly large supply of such milk is available.

The situation treated above with respect to the procurement of milk by distributors is strikingly similar to the situation that obtains when distributors purchase their milk in accordance with the provisions of a formal classified price plan. In the former situation, there is a close approximation to the purchase of milk on a classified price basis, considering the market as a whole, due to the fact that those distribution units which are highly specialized, i.e., which distribute by far the larger portion of the milk they secure as fluid milk, tend to pay higher prices for milk than distribution units which are less highly specialized, i.e., which utilize relatively more of the milk they secure as manufacturing milk. The difference between this method of purchasing milk and a formal classified price method of purchasing is merely one of the degree and precision with which milk is classified in accordance with the use made thereof.

Producers' cooperative associations have recognized the principles noted above in bargaining with distributors and have developed the system of formal class prices whereby milk is priced by cooperatives to distributors in accordance with the form in which milk is sold by distributors. Thus, a formal system of class prices, intended to secure the same result, is substituted for the rather informal system of class prices discussed above. The distributor with the larger use of milk in fluid sales pays a higher average price than the one with a considerable utilization in manufactured products. The system of formal class prices has the advantage for the producers' cooperative association of simplifying the bargaining arrangements, since it automatically establishes the basis of payment for the different dealers once the general terms for the market are determined. Without class prices, individual bargains would be necessary with each dealer in order to insure producers the full value of their particular milk, and the association would be exposed to the criticism of over- or under-pricing the milk of particular producers and over- or undercharging particular distributors. Class prices dispose of this necessity for individual bargains and result in payments corresponding to the prices which would have been arrived at under proper individual bargaining.

In addition to the seasonal factors treated above which lead to the development of a classified price plan of selling milk to distributors, there are certain types of organization of supply that would lead to the development of a formal class price system, even though the volume of milk produced throughout the year and the volume of milk consumed in the market throughout the year were precisely correlated, except for daily variations in demand and supply. In such cases, the reason for the development of a classified price plan is to be found in the fact that there must be brought to market a volume of milk in excess of daily average sales, such excess volume being needed to meet daily variations in sales.

It is rather well recognized that there are significant variations in the amount of milk sold from day to day in a fluid milk market, such variations being attributable to such factors as (1) consumption and working habits of the people which tend to show a regular day of the week variation, (2) holidays, and (3) changes in temperature.

Consumption and working habits of the people are such as to cause a rather regular day of the week variation in the sales of various products. Most business concerns, for example, do not operate on Sunday and many also close operations on Saturday afternoons. The Sunday dinner is frequently a heavier and more elaborate meal than that served on week days. These factors affect wholesale and retail sales of the various products differently. Wholesale sales of milk and cream are ordinarily low on Sunday, with sales to restaurants and cafeterias also low on Saturday. Sales of cream to stores are usually large on Saturday, Friday and Monday. Route sales of milk and cream are heavier on Sunday.

Examples of the variation in the average sales on various days of the week for several markets are given in tables 6 to 10, inclusive. In general, the greatest variation is found in cream sales, the range for the New York market for all cream being from 84.7 percent of the average daily sales for the week on Sunday to 127.9 percent on Saturday. For all milk in the same market the range was from 90.2 percent of the average daily sales for the week on Sunday to 102.8 percent on Friday. ^{20/} Examination of the tables indicates a greater variation in wholesale sales of fluid milk than of the retail sales, but in the case of cream the reverse may be the case. These variations differ in the various sections of a large city depending largely upon the economic status of the consumers and the number of persons who lunch away from home during the day. ^{21/} Since dealers have varying proportions of retail and wholesale business and serve different sections of the population, they are unlikely to have variations in sales corresponding to those in the market as a whole. Some dealers will have larger variations in sales and others smaller variations. The difference in the character of the business of dealers and the consequent differences of sales by day of the week, even for the same type of products, are shown in tables 11 to 14, inclusive. These tables show the variation in the sales of Milwaukee, Wisconsin, dealers during the week of April 22 to 28, 1934. The daily sales of each dealer have been shown as a percentage of his own average daily sales for the week. This variation in sales among dealers means that the excess milk above the average daily sales of the market is higher than would be the case if dealers had available some method of integrating their individual fluctuations in sales with other dealers having different fluctuations, through a shifting of milk between them.

^{20/} Ross, H. A., Some Factors Affecting the Demand for Milk and Cream in the Metropolitan Area of New York, United States Department of Agriculture - Technical Bulletin 73, 1928.

^{21/} Ibid, p. 32.

Table 7. Daily fluctuation in sales of milk and cream
in the New York Metropolitan Area, 1924.

| Type of sale | Percentage of average daily sales for the week | | | | | | |
|---------------------------------|--|---------|---------|-----------|----------|---------|----------|
| | Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
| | Percent | Percent | Percent | Percent | Percent | Percent | Percent |
| <u>Retail sales of milk</u> | | | | | | | |
| Qts., Grade B | 103.7 | 99.5 | 99.6 | 99.8 | 99.2 | 99.3 | 98.9 |
| Qts., Grade A | 100.5 | 100.0 | 100.2 | 100.3 | 99.8 | 99.8 | 99.4 |
| Qts., Certified | 98.9 | 100.9 | 99.8 | 100.6 | 100.6 | 100.3 | 98.9 |
| Qts., Buttermilk | 76.4 | 106.9 | 106.5 | 106.3 | 102.9 | 106.5 | 94.5 |
| Pts., Grade B | 77.6 | 106.8 | 106.9 | 108.0 | 108.0 | 107.2 | 85.5 |
| 1/2 Pts., Condensed | 106.0 | 96.9 | 99.0 | 105.8 | 93.8 | 94.7 | 103.8 |
| <u>Retail sales of cream</u> | | | | | | | |
| 1/2 Pts., Light | 108.0 | 98.0 | 99.7 | 103.5 | 97.8 | 96.6 | 96.4 |
| 1/2 Pts. Extra Heavy | 176.3 | 83.4 | 83.8 | 92.3 | 86.2 | 82.1 | 90.9 |
| <u>Wholesale sales of milk</u> | | | | | | | |
| Qts., Grade B | 92.3 | 99.4 | 100.8 | 99.6 | 100.3 | 102.2 | 104.4 |
| Pts., Grade B | 46.8 | 115.2 | 116.8 | 115.7 | 118.4 | 115.9 | 71.2 |
| Bulk, Grade B | 73.5 | 107.3 | 103.1 | 104.2 | 104.3 | 107.2 | 100.4 |
| Condensed Milk | 42.7 | 114.5 | 86.9 | 93.4 | 83.6 | 130.6 | 148.3 |
| Buttermilk | 34.4 | 126.5 | 106.0 | 109.2 | 114.4 | 115.0 | 94.5 |
| <u>Wholesale sales of cream</u> | | | | | | | |
| Light | 42.3 | 118.9 | 95.6 | 93.7 | 94.9 | 121.8 | 132.8 |
| Extra Heavy | 72.9 | 107.7 | 88.9 | 91.4 | 86.6 | 112.2 | 140.3 |

Compiled from "Some Factors Affecting the Demand for Milk and Cream in the
Metropolitan Area of New York," by H. A. Ross, United States
Department of Agriculture, Technical Bulletin No. 73, June 1928.

Table 8. Daily fluctuation in retail, wholesale and total sales of fluid milk and cream in Reading, Pennsylvania.

| Type of sale | Percentage of average daily sales for the week | | | | | | |
|--------------|--|---------|---------|-----------|----------|---------|----------|
| | Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
| | Percent | Percent | Percent | Percent | Percent | Percent | Percent |
| Milk: | | | | | | | |
| Retail | 107.49 | 95.18 | 98.62 | 98.54 | 99.01 | 99.18 | 101.97 |
| Wholesale | 61.36 | 106.27 | 102.46 | 102.86 | 104.50 | 115.20 | 107.35 |
| Total | 91.90 | 98.93 | 99.92 | 100.00 | 100.86 | 104.60 | 103.79 |
| Cream: | | | | | | | |
| Retail | 136.07 | 87.18 | 99.62 | 96.63 | 87.51 | 85.99 | 107.01 |
| Wholesale | 77.21 | 102.33 | 96.32 | 111.62 | 105.01 | 95.83 | 111.67 |
| Total | 112.91 | 95.14 | 98.32 | 102.53 | 94.40 | 89.87 | 108.84 |

Compiled from "Distribution and Consumption of Milk in Reading, Pennsylvania, by T. K. Cowden, Pennsylvania Agricultural Experimental Station, Technical Bulletin 614, November 8, 1933.

Table 9. Daily fluctuation ^{1/} in sales of certain dairy products in Chicago and suburbs.

| Type of sale | Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|----------------------|---------|---------|---------|-----------|----------|---------|----------|
| | Percent | Percent | Percent | Percent | Percent | Percent | Percent |
| Milk, Quarts | 104.7 | 97.2 | 99.9 | 99.3 | 100.4 | 100.4 | 100.0 |
| Milk, Pints | 64.3 | 100.8 | 104.2 | 104.9 | 104.4 | 105.2 | 81.3 |
| 22% Cream, 1/2 Pints | 153.7 | 93.7 | 100.7 | 99.3 | 103.1 | 97.6 | 99.3 |
| 32% Cream, 1/2 Pints | 311.9 | 76.4 | 88.1 | 96.3 | 107.3 | 93.0 | 115.3 |
| | : | : | : | : | : | : | : |
| | : | : | : | : | : | : | : |

Compiled from "The Marketing of Milk in the Chicago Dairy District," Illinois Agricultural Experiment Station Bulletin No. 269.

^{1/} Based on average retail sales to more than 200,000 families during the three-year period 1920-1922. Average sales for the five days Tuesday, Wednesday, Thursday, Friday and Saturday = 100 percent.

Table 10. Daily fluctuation in sales and receipts of milk and cream for the Pittsburgh market, during the last two weeks of July, 1933. 1/

| Type of sale | Percentage of average daily sales for the week | | | | | | |
|------------------------------------|--|---------|---------|-----------|----------|---------|----------|
| | Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
| | Percent | Percent | Percent | Percent | Percent | Percent | Percent |
| Regular fluid milk | 76.25 | 105.16 | 102.56 | 100.69 | 102.01 | 109.44 | 103.90 |
| Special fluid milk | 95.09 | 97.74 | 103.66 | 97.06 | 105.17 | 96.31 | 104.96 |
| Total fluid milk | 76.67 | 104.99 | 102.58 | 100.61 | 102.08 | 109.15 | 103.92 |
| Fluid Cream | 92.36 | 92.41 | 100.60 | 93.22 | 105.57 | 99.82 | 116.02 |
| Dealer purchases of milk and cream | 98.35 | 97.25 | 100.21 | 102.83 | 101.31 | 98.55 | 101.48 |

Compiled from "The Distribution and Consumption of Milk in Allegheny County, Pennsylvania," by T. K. Cowdon, and C. G. Gifford, Pennsylvania Agricultural Experiment Station Technical Paper 641, March 13, 1934.

1/ Based on reports received from 35 dealers handling 77 percent of the fluid milk sales in the market.

Table 11. Daily fluctuation in the sales of milk and cream in Williamsport, Pennsylvania, March, April and May 1933.

| Type of sale | Percentage of average daily sales for the week | | | | | | |
|--------------|--|---------|---------|-----------|----------|---------|----------|
| | Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
| | Percent | Percent | Percent | Percent | Percent | Percent | Percent |
| <u>Milk</u> | | | | | | | |
| Retail | 102.35 | 97.81 | 99.99 | 100.04 | 99.71 | 99.69 | 100.40 |
| Wholesale | 65.86 | 104.23 | 102.25 | 105.63 | 105.70 | 111.06 | 105.25 |
| Total | 94.94 | 99.17 | 100.80 | 101.15 | 100.76 | 102.97 | 101.09 |
| <u>Cream</u> | | | | | | | |
| Retail | 138.75 | 87.51 | 97.81 | 96.18 | 90.10 | 88.15 | 101.52 |
| Wholesale | 88.92 | 95.35 | 93.73 | 102.59 | 93.77 | 106.94 | 118.20 |
| Total | 111.75 | 93.14 | 95.16 | 98.23 | 92.46 | 99.07 | 110.19 |

Compiled from "Distribution and Consumption of Milk in Williamsport, Pennsylvania," by T. K. Cowden, Pennsylvania Agricultural Experiment Station Technical Paper No. 615, November 8, 1933.

Holidays also exert a considerable influence upon milk and cream sales, since these are occasions for special activities. On certain of these days, notably during the summer, there is a considerable movement of people out of the city, while other holidays are feast days. In general, milk consumption appears to be somewhat decreased on holidays except for increases at Thanksgiving and Christmas. Sales of extra heavy cream at Christmas and Thanksgiving increase by over eighty per cent. Data for the New York market are given in Table 15.

Temperature is also an important factor in short-time variations in the demand for milk. In general, an increase in temperature is associated with an increase in demand, and a decrease in temperature is associated with a decrease in demand. In the New York market it was found that temperature changes in winter are more marked than in summer but that a change of a given number of degrees produced about three times as great a change in summer as a similar change in the winter. 22/

On the basis of the foregoing, it appears that a considerable volume of milk in excess of average daily sales must be brought to market in order to have a supply sufficient to cover daily variations in the demand for milk. Few data are available relative to the necessary size of this daily excess, hereinafter termed the operating reserve, but it appears to range from ten to twenty percent of average daily sales at least, and perhaps higher in some markets.

If the producers in the market so organize their service of supply to the distributors so as to remove from them entirely or even partly the necessity of carrying this "operating reserve", producers can secure a higher price for the delivered milk since the distributor has always available all the milk he needs for his fluid milk trade and is also relieved of the necessity of procuring his milk from a large number of individual producers and is under no necessity of taking milk, a portion of which must be disposed of in channels other than fluid milk. This is one of the services which operating producers' cooperative associations commonly provide distributors purchasing from them. They are thus able to sell distributors milk at a higher price than they are able to secure when distributors are not so serviced. There would thus arise what amounts to a class price for milk, distributors paying a certain price for the milk called for from the association and used for fluid purposes, with the association utilizing the remaining milk in the most profitable possible manner but in uses yielding somewhat lower returns than the fluid sales. The difference between the prices charged distributors for

22/ Ross, H. A., Some Factors Affecting the Demand for Milk and Cream in the Metropolitan Area of New York, United States Department of Agriculture Technical Bulletin No. 73, pp. 39-44.

Table 12. Daily fluctuation in wholesale sale of
pints of regular milk, Milwaukee, April
21-28, 1934.

| Company: | Percentage of average daily sales for the week | | | | | | |
|-----------|--|---------|---------|---------|---------|---------|----------|
| | Sunday | Monday | Tuesday | Wed. | Thurs. | Friday | Saturday |
| | Percent | Percent | Percent | Percent | Percent | Percent | Percent |
| H | 103.0 | 113.1 | 123.5 | 72.1 | 154.4 | 75.1 | 154.4 |
| I | 110.3 | 133.6 | 135.2 | 139.4 | 140.4 | 131.7 | 3.7 |
| M | 7.8 | 134.4 | 127.7 | 128.2 | 131.0 | 137.3 | 33.6 |
| R | 73.3 | 115.1 | 95.5 | 102.1 | 109.9 | 124.3 | 79.8 |
| S | 25.9 | 129.6 | 51.9 | 25.9 | 181.2 | 125.6 | 129.6 |
| D | 2.1 | 85.6 | 139.1 | 152.0 | 128.2 | 128.5 | 64.2 |
| K | 59.1 | 106.8 | 88.6 | 70.5 | 215.6 | 75.0 | 86.4 |
| O | 35.7 | 123.5 | 109.8 | 120.3 | 109.8 | 116.0 | 82.4 |
| T | | | | | | | |
| U | 0.0 | 116.6 | 116.7 | 116.7 | 116.7 | 116.7 | 116.7 |
| A | 215.5 | 90.0 | 81.5 | 78.5 | 82.8 | 79.9 | 71.7 |
| C | 67.7 | 121.2 | 101.6 | 146.8 | 90.3 | 112.9 | 56.5 |
| V | 65.8 | 101.5 | 106.1 | 112.9 | 116.9 | 26.7 | 98.1 |
| B | 15.6 | 132.4 | 131.7 | 133.3 | 123.8 | 122.8 | 39.9 |
| E | 0.0 | 197.1 | 156.3 | 149.5 | 156.3 | 13.6 | 27.2 |
| F | 0.0 | 0.0 | 0.0 | 700.0 | 0.0 | 0.0 | 0.0 |
| L | 61.8 | 102.3 | 123.7 | 113.2 | 139.0 | 72.0 | 32.4 |
| P | | | | | | | |
| Q | | | | | | | |
| Y | 100.0 | 0.0 | 0.0 | 200.0 | 0.0 | 200.0 | 200.0 |
| Weighted: | | | | | | | |
| average: | | | | | | | |
| for all: | 69.6 | 119.1 | 115.3 | 116.5 | 117.6 | 112.6 | 49.0 |
| dealers: | | | | | | | |

Compiled from unpublished data secured during the Milwaukee Milk Survey conducted by the Federal Emergency Relief Administration, and Wisconsin Emergency Relief Administration under the direction of the Agricultural Adjustment Administration.

Table 13. Daily fluctuation in retail sales of
quarts of regular milk, Milwaukee,
April 22-28, 1934

| Company | Percentage of average daily sales for the week | | | | | | |
|---|--|---------|---------|-----------|----------|---------|----------|
| | Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
| | Percent | Percent | Percent | Percent | Percent | Percent | Percent |
| H | 91.9 | 96.2 | 103.0 | 98.6 | 103.6 | 102.9 | 103.8 |
| I | 99.6 | 97.6 | 100.2 | 100.2 | 103.7 | 100.8 | 100.9 |
| M | 100.2 | 96.2 | 99.0 | 100.1 | 100.9 | 99.7 | 103.9 |
| R | 102.2 | 96.5 | 101.7 | 98.8 | 100.8 | 98.0 | 102.0 |
| S | 99.3 | 97.4 | 102.2 | 98.3 | 99.7 | 98.7 | 104.4 |
| D | 96.4 | 101.1 | 95.8 | 102.8 | 102.7 | 97.8 | 103.4 |
| J | 100.1 | 103.3 | 98.9 | 98.5 | 99.7 | 99.2 | 107.3 |
| K | 99.3 | 97.4 | 100.8 | 100.0 | 100.2 | 100.3 | 102.0 |
| U | 98.7 | 99.6 | 100.5 | 99.9 | 99.1 | 100.2 | 102.0 |
| A | 100.7 | 97.3 | 98.1 | 100.0 | 101.1 | 99.2 | 103.6 |
| C | 97.3 | 103.4 | 99.7 | 95.4 | 104.1 | 98.9 | 101.2 |
| V | 99.4 | 96.9 | 101.8 | 101.3 | 102.8 | 99.2 | 98.6 |
| B | 99.8 | 98.1 | 97.8 | 101.0 | 101.9 | 97.6 | 103.8 |
| E | 96.3 | 100.7 | 95.1 | 103.6 | 102.7 | 96.3 | 105.3 |
| F | 95.3 | 102.4 | 95.5 | 102.9 | 101.4 | 98.6 | 103.9 |
| G | 95.1 | 99.0 | 100.4 | 99.2 | 101.2 | 100.1 | 105.0 |
| L | 97.9 | 96.3 | 99.4 | 103.5 | 103.7 | 98.8 | 100.4 |
| P | 99.0 | 98.5 | 99.3 | 100.5 | 100.1 | 101.0 | 101.6 |
| Q | 98.9 | 98.9 | 99.3 | 96.5 | 103.9 | 99.9 | 102.6 |
| Y | 99.0 | 100.8 | 97.4 | 99.8 | 100.0 | 100.8 | 102.2 |
| Weighted average for all dealers | 99.7 | 97.9 | 98.4 | 100.4 | 101.3 | 99.0 | 103.3 |

Compiled from unpublished data secured during the Milwaukee Milk Survey conducted by the Federal Emergency Relief Administration and the Wisconsin Emergency Relief Administration under the direction of the Agricultural Adjustment Administration.

Table 14. Daily fluctuation in wholesale sales of
quarts of 18% cream, Milwaukee, April 22-
28, 1934

| Company | Percentage of average daily sales for the week | | | | | | |
|------------------|--|---------|---------|-----------|----------|---------|----------|
| | Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
| | Percent | Percent | Percent | Percent | Percent | Percent | Percent |
| H | 35.9 | 89.7 | 80.7 | 107.7 | 116.7 | 95.7 | 170.6 |
| I | 78.4 | 106.4 | 95.2 | 89.6 | 95.2 | 117.6 | 117.6 |
| M | 30.6 | 115.1 | 96.7 | 71.4 | 87.5 | 78.3 | 170.4 |
| R | 100.0 | 76.5 | 100.0 | 70.6 | 129.4 | 94.1 | 129.4 |
| S | 116.7 | 53.3 | 116.7 | 58.2 | 116.7 | 116.7 | 116.7 |
| D | 0.0 | 0.0 | 0.0 | 0.0 | 700.0 | 0.0 | 0.0 |
| J | 33.3 | 166.7 | 66.7 | 100.0 | 100.0 | 200.0 | 33.3 |
| K | 83.1 | 99.0 | 87.9 | 95.8 | 97.4 | 111.7 | 125.1 |
| O | 9.5 | 131.8 | 113.0 | 116.1 | 103.6 | 119.3 | 106.7 |
| T | | | | | | | |
| U | 53.8 | 107.7 | 107.7 | 107.7 | 107.7 | 107.7 | 107.7 |
| A | 97.6 | 91.0 | 101.6 | 88.3 | 101.6 | 90.7 | 129.2 |
| C | 65.1 | 114.0 | 146.4 | 97.7 | 97.7 | 65.1 | 114.0 |
| V | 75.4 | 86.2 | 53.8 | 96.9 | 96.9 | 118.5 | 172.3 |
| B | 72.6 | 103.6 | 94.7 | 108.9 | 95.8 | 101.8 | 122.6 |
| E | 89.1 | 50.9 | 127.3 | 101.8 | 101.8 | 76.4 | 152.7 |
| F | 116.7 | 58.3 | 116.7 | 116.7 | 0.0 | 58.3 | 233.3 |
| G | 94.2 | 67.4 | 114.4 | 107.7 | 107.7 | 94.2 | 114.4 |
| L | 311.1 | 0.0 | 77.8 | 0.0 | 77.8 | 155.5 | 77.8 |
| P | 41.2 | 41.2 | 41.2 | 123.5 | 41.2 | 82.4 | 329.3 |
| Q | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 700.0 | 0.0 |
| Y | 140.0 | 93.3 | 93.3 | 93.3 | 186.8 | 0.0 | 93.3 |
| Weighted | | | | | | | |
| Average | 77.0 | 99.9 | 95.9 | 97.7 | 98.8 | 101.5 | 129.2 |
| all deal- ers | | | | | | | |

Compiled from unpublished data secured during the Milwaukee Milk Survey conducted by the Federal Emergency Relief Administration and the Wisconsin Emergency Relief Administration under the direction of the Agricultural Adjustment Administration.

Table 15. Daily fluctuation in retail sales of half pints of 18% cream, Milwaukee, April 22-28, 1934

| Company | Percentage of average daily sales for the week | | | | | | |
|-----------------|--|---------|---------|-----------|----------|---------|----------|
| | Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
| | Percent | Percent | Percent | Percent | Percent | Percent | Percent |
| H | 119.5 | 85.4 | 97.4 | 119.5 | 78.5 | 100.7 | 99.0 |
| M | 152.0 | 74.7 | 92.8 | 93.1 | 90.7 | 89.6 | 107.1 |
| R | 206.1 | 76.4 | 84.0 | 51.5 | 89.1 | 76.4 | 86.5 |
| S | 301.3 | 35.4 | 53.2 | 57.6 | 79.7 | 66.5 | 106.3 |
| D ^{1/} | 211.7 | 78.4 | 96.3 | 0.0 | 88.0 | 101.8 | 123.8 |
| K ^{2/} | 165.6 | 82.8 | 90.3 | 94.1 | 86.6 | 82.8 | 97.8 |
| E | 164.0 | 84.0 | 89.3 | 97.3 | 73.4 | 84.0 | 108.0 |
| G | 95.5 | 190.8 | 0.0 | 79.5 | 143.2 | 95.5 | 95.5 |
| Weighted: | | | | | | | |
| average | 159.9 | 76.5 | 91.3 | 88.0 | 88.6 | 89.3 | 106.4 |
| all dealers | | | | | | | |

Compiled from unpublished data secured during the Milwaukee Milk Survey conducted by the Federal Emergency Relief Administration and the Wisconsin Emergency Relief Administration under the direction of the Agricultural Adjustment Administration.

^{1/} 19%

^{2/} 16 $\frac{1}{2}$ %

Table 16. Effect of holidays on sales of retail milk and cream in the New York Metropolitan Area - 1924.

| Product | Change in sales <u>L/</u> | | | | | | | | | | | | | |
|--------------------|---------------------------|---------------------|------------------------|--------|---------------|--------------|----------------|-----------|------------|---------------|-----------|----------|----------|----------|
| | New Year's Day | Lincoln's Birth day | Washington's Birth day | Easter | Passover week | Memorial Day | Fourth of July | Labor Day | Yom Kippur | Thanks giving | Christmas | Per cent | Per cent | Per cent |
| Quarts - Grade B | - 1.4 | + 1.2 | - .6 | 0 | - 1.5 | - 1.2 | - 2.4 | - 6.0 | 0 | + .6 | + 3.0 | | | |
| Quarts - Grade A | 0 | - 1.2 | - .6 | - .6 | - 1.4 | - 1.3 | - 2.4 | - 4.8 | 0 | + .6 | + 1.2 | | | |
| Quarts - Certified | - 3.0 | - 1.8 | - 2.9 | .0 | - 1.8 | - 1.2 | - 1.8 | - 6.5 | - .6 | - 1.2 | - 1.8 | | | |
| Pints - Grade B | - 24.0 | - 1.4 | - 20.7 | + 1.6 | - 2.6 | - 26.5 | - 28.3 | - 29.8 | - 5.5 | - 25.1 | - 26.1 | | | |
| Extra heavy cream | + 44.0 | + 2.1 | + 11.1 | + 2.8 | .6 | + 23.3 | + 27.8 | - 7.8 | - 1.9 | + 83.4 | + 83.7 | | | |

Compiled from "Some Factors Affecting the Demand for Milk and Cream in the Metropolitan Area of New York," United States Department of Agriculture, Technical Bulletin No. 73 - June, 1928.

L/ Percentage change from the average corrected sales for the three days preceding and the three days following the holiday.

milk that is sold by them as fluid milk and the price the association receives for milk in other uses is, other factors being the same, the premium distributors are willing to pay for milk when such milk is furnished them in conformance with their daily needs.

Although there may be other factors that, in a particular market, also contribute to the development of a system of class prices, the foregoing treatment suffices to explain the more important considerations obtaining that, taken as a whole, lead to the development of class prices in most important milk markets.

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Ross, H. A., Cornell University, Agri. Exp. Station Bulletin No. 527.

Ross, H. A., The Marketing of Milk in the Chicago Dairy District, Illinois Agri. Exp. Station Bulletin No. 269.

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A P P E N D I X

Table 17. Index numbers of seasonal variation in fluid milk sales by distributors purchasing from cooperative associations.

| | Baltimore | Boston | Twin Cities |
|-----------|-----------|---------|-------------|
| | Percent | Percent | Percent |
| January | 97.7 | 96.9 | 98.8 |
| February | 98.6 | 97.6 | 101.0 |
| March | 100.2 | 98.6 | 101.4 |
| April | 100.4 | 97.2 | 101.8 |
| May | 103.1 | 99.5 | 99.5 |
| June | 101.4 | 102.8 | 98.1 |
| July | 99.0 | 106.8 | 98.0 |
| August | 96.4 | 103.1 | 99.1 |
| September | 100.5 | 100.5 | 100.1 |
| October | 103.0 | 100.4 | 102.5 |
| November | 101.0 | 100.7 | 101.7 |
| December | 98.7 | 95.9 | 98.0 |
| Average | 100.0 | 100.0 | 100.0 |

Index numbers were calculated by the median-link-relative method from data of fluid milk sales, omitting those months in which price changes occurred. For basic data used in computing the index for Baltimore see tables 17 and 18; for Boston, see tables 19 and 20; and for Twin Cities, see tables 21 and 22.

1/
Table 18. Fluid milk sales of Maryland State Dairymen's Association, December 1923-December 1931.

| Year | Jan. | Feb. | March | April | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Average |
|------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | : 000 | : 000 | : 000 | : 000 | : 000 | : 000 | : 000 | : 000 | : 000 | : 000 | : 000 | : 000 | : 000 |
| | : gallons | : gallons | : gallons | : gallons | : gallons | : gallons | : gallons | : gallons | : gallons | : gallons | : gallons | : gallons | : gallons |
| 1923 | : | : | : | : | : | : | : | : | : | : | : | : | : |
| 1924 | 1,171 | 1,207 | 1,230 | 1,237 | 1,262 | 1,254 | 1,262 | 1,287 | 1,313 | 1,367 | 1,368 | 1,348 | 1,275 |
| 1925 | 1,347 | 1,388 | 1,428 | 1,445 | 1,489 | 1,552 | 1,491 | 1,439 | 1,525 | 1,578 | 1,508 | 1,490 | 1,468 |
| 1926 | 1,476 | 1,489 | 1,517 | 1,530 | 1,592 | 1,570 | 1,539 | 1,490 | 1,544 | 1,582 | 1,510 | 1,481 | 1,525 |
| 1927 | 1,480 | 1,512 | 1,549 | 1,536 | 1,562 | 1,558 | 1,538 | 1,485 | 1,554 | 1,598 | 1,562 | 1,558 | 1,541 |
| 1928 | 1,527 | 1,549 | 1,571 | 1,549 | 1,596 | 1,562 | 1,517 | 1,481 | 1,506 | 1,575 | 1,555 | 1,514 | 1,542 |
| 1929 | 1,517 | 1,526 | 1,547 | 1,551 | 1,673 | 1,566 | 1,528 | 1,495 | 1,571 | 1,575 | 1,555 | 1,510 | 1,551 |
| 1930 | 1,497 | 1,507 | 1,543 | 1,534 | 1,592 | 1,561 | 1,517 | 1,493 | 1,587 | 1,469 | 1,509 | 1,465 | 1,523 |
| 1931 | 1,434 | 1,450 | 1,431 | 1,470 | 1,491 | 1,462 | 1,435 | 1,407 | 1,468 | 1,457 | 1,414 | 1,376 | 1,441 |

Compiled from "History of Maryland State Dairymen's Association," Appendix Table VI.

1/ Adjusted to 30 day month.

Table 19. Retail prices of milk per quart delivered in Baltimore, 1924-1931

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Average |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
| | Cents | Cents | Cents | Cents | Cents | Cents | Cents | Cents | Cents | Cents | Cents | Cents | Cents |
| 1924 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 |
| 1925 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 |
| 1926 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 14 | 14 | 14 | 13 |
| 1927 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| 1928 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| 1929 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| 1930 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| 1931 | 14 | 14 | 14 | 13 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |

Compiled from reports of the United States Department of Labor, Bureau of Labor Statistics.

Table 20. Monthly fluid milk sales¹/_{by large dealers in Boston, 1922-1931.}

| Year: | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Average |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| | Mil. | Mil. | Mil. | Mil. | Mil. | Mil. | Mil. | Mil. | Mil. | Mil. | Mil. | Mil. | Mil. |
| | pounds: | pounds: | pounds: | pounds: | pounds: | pounds: | pounds: | pounds: | pounds: | pounds: | pounds: | pounds: | pounds: |
| 1922: | 21.4 | 21.7 | 22.0 | 21.5 | 22.8 | 23.9 | 23.4 | 22.9 | 22.6 | 22.5 | 22.7 | 21.3 | 22.4 |
| 1923: | 22.0 | 22.4 | 23.0 | 22.6 | 23.6 | 25.6 | 24.5 | 23.7 | 23.2 | 23.6 | 23.5 | 22.6 | 23.4 |
| 1924: | 22.9 | 23.1 | 24.1 | 24.5 | 25.2 | 26.2 | 27.2 | 26.1 | 24.6 | 24.1 | 24.4 | 23.8 | 24.7 |
| 1925: | 24.2 | 24.6 | 25.2 | 25.2 | 25.5 | 28.0 | 27.2 | 26.3 | 25.7 | 25.8 | 26.1 | 25.4 | 25.8 |
| 1926: | 25.9 | 26.1 | 26.5 | 26.5 | 27.0 | 27.6 | 28.9 | 27.5 | 27.2 | 28.4 | 28.4 | 26.6 | 27.2 |
| 1927: | 27.2 | 27.8 | 28.6 | 28.4 | 27.9 | 29.0 | 29.8 | 28.2 | 28.2 | 28.7 | 28.1 | 27.8 | 28.3 |
| 1928: | 28.7 | 29.0 | 29.5 | 28.9 | 29.5 | 29.9 | 31.3 | 31.4 | 29.4 | 30.6 | 31.1 | 29.8 | 29.9 |
| 1929: | 30.5 | 30.8 | 31.5 | 31.0 | 32.0 | 32.8 | 32.8 | 31.7 | 31.0 | 30.4 | 30.7 | 29.1 | 31.2 |
| 1930: | 29.6 | 30.0 | 30.4 | 30.2 | 31.2 | 31.4 | 30.5 | 29.7 | 30.6 | 29.7 | 29.1 | 28.2 | 30.1 |
| 1931: | 30.0 | 29.6 | 30.2 | 29.9 | 31.8 | 30.2 | 31.6 | 30.6 | 30.1 | 30.3 | 29.7 | 28.5 | 30.2 |

¹/ Adjusted to thirty-day month.

Data supplied by W. H. Bronson of the New England Milk Producers' Association.

Table 21. Retail prices of milk per quart delivered in Boston, 1922-1931.

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | : | : | : | : | : | : | : | : | : | : | : | : |
| | : | : | : | : | : | : | : | : | : | : | : | : |
| | Cents: | Cents: | Cents: | Cents: | Cents: | Cents: | Cents: | Cents: | Cents: | Cents: | Cents: | Cents: |
| 1922 | 13.5 | 13.5 | 13.5 | 12.5 | 12.5 | 12.5 | 13.5 | 13.5 | 13.5 | 14.5 | 14.5 | 14.5 |
| 1923 | 14.5 | 14.5 | 14.5 | 13.5 | 13.5 | 13.5 | 14.0 | 14.5 | 14.5 | 14.5 | 15.5 | 15.0 |
| 1924 | 14.5 | 13.5 | 12.5 | 12.0 | 12.0 | 12.0 | 12.5 | 13.5 | 14.5 | 14.5 | 14.5 | 14.5 |
| 1925 | 14.5 | 14.5 | 13.5 | 13.5 | 13.0 | 13.0 | 14.0 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 |
| 1926 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 13.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.0 |
| 1927 | 14.0 | 14.0 | 14.0 | 14.0 | 14.0 | 14.0 | 14.0 | 15.0 | 14.0 | 15.5 | 15.5 | 16.5 |
| 1928 | 16.0 | 15.5 | 15.5 | 14.5 | 14.5 | 14.5 | 14.5 | 15.5 | 15.5 | 15.5 | 15.5 | 15.5 |
| 1929 | 15.5 | 15.5 | 15.5 | 15.5 | 15.5 | 14.5 | 15.5 | 15.5 | 15.5 | 15.5 | 15.5 | 15.5 |
| 1930 | 15.5 | 15.5 | 15.5 | 15.5 | 14.5 | 14.5 | 14.5 | 15.5 | 15.5 | 15.5 | 15.5 | 13.5 |
| 1931 | 13.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 13.5 | 13.5 | 13.5 | 13.5 | 10.0 |
| | : | : | : | : | : | : | : | : | : | : | : | 12.5 |
| Data supplied by W. H. Bronson of the New England Milk Producers' Association. | | | | | | | | | | | | |

Note: During the period April 1, 1923 to September 4, 1927 some dealer's prices were 1/2 cent higher than the prices indicated above.

Table 22. Fluid milk sales 1/ to distributors by Twin City Milk Producers' Association, 1924-1932.

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1924 | 11,098 | 11,541 | 11,279 | 11,876 | 11,720 | 11,814 | 11,871 | 11,799 | 11,788 | 12,318 | 12,225 | 11,843 |
| 1925 | 11,958 | 12,265 | 12,572 | 12,710 | 11,720 | 12,572 | 12,210 | 12,570 | 13,052 | 12,492 | 12,421 | 11,861 |
| 1926 | 12,079 | 12,178 | 12,246 | 12,331 | 12,522 | 12,170 | 12,004 | 11,999 | 11,988 | 12,368 | 12,293 | 12,002 |
| 1927 | 12,246 | 12,485 | 13,775 | 12,474 | 12,005 | 11,912 | 11,769 | 12,111 | 12,737 | 12,438 | 12,608 | 12,100 |
| 1928 | 12,480 | 12,634 | 12,782 | 12,729 | 12,919 | 12,238 | 12,270 | 12,436 | 12,439 | 13,607 | 13,406 | 12,644 |
| 1929 | 12,785 | 12,942 | 12,968 | 13,086 | 12,820 | 12,437 | 12,432 | 12,684 | 13,053 | 13,495 | 13,433 | 12,980 |
| 1930 | 13,256 | 13,571 | 13,648 | 13,646 | 13,119 | 13,004 | 13,142 | 13,097 | 13,346 | 13,543 | 13,487 | 12,860 |
| 1931 | 12,961 | 13,277 | 13,201 | 13,268 | 13,821 | 12,842 | 12,993 | 12,162 | 12,568 | 12,808 | 12,724 | 12,065 |
| 1932 | 12,203 | 12,543 | 12,724 | 12,288 | 12,534 | 12,571 | 12,717 | 12,771 | 12,612 | 12,093 | 11,862 | |

Computed from data in National Cooperative Milk Producers' Federation, History Series No. 7. "Twin City Milk Producers' Association." Appendix Table IV.

1/ Adjusted to 30-day month.

Table 23. Retail prices of milk per quart
in Twin Cities, 1924-1932.

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|---|-------|-------|-------|-------|-------|-------|-------|----------|-------|----------|----------|-------|
| | Cents | Cents | Cents | Cents | Cents | Cents | Cents | Cents | Cents | Cents | Cents | Cents |
| 1924 | 11-12 | 11-12 | 11-12 | 10 | 10 | 10 | 10 | 11 | 11 | 11 | 11 | 11 |
| 1925 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 12 | 12 | 12 | 12 |
| 1926 | 11-12 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11-10-11 | 11 |
| 1927 | 10-11 | 11 | 11 | 11 | 11 | 11 | 11 | 11-11-12 | 12 | 12 | 12 | 12 |
| 1928 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 1929 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 1930 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11-10-11 | 10 | 10 |
| 1931 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 9-10 |
| 1932 | 9-10 | 8-10 | 8-9 | 8-9 | 8-9 | 8-9 | 8 | 8 | 8 | 8 | 8 | 8 |
| Data supplied by Twin City Milk Producers' Association. | | | | | | | | | | | | |

1/ In the discussion in the text of this paper the reported change in price during December 1926 and January 1927 was not considered. The Bureau of Labor Statistics reported no change in the price for these months for St. Paul and no change occurred in prices paid to producers.

Table 21. Sales and retail prices of fluid milk in the Boston Sales Area.

| Year and month | Class I sales of milk | Milk reported as percent of estimated total sales | Estimated total sales | Estimated average daily Class I sales | Retail price delivered per quart | Retail store price per quart | Class I price per cwt. of 3.7% milk f.o.b. City |
|---------------------|-----------------------|---|-----------------------|---------------------------------------|----------------------------------|------------------------------|---|
| | 000 lbs. | Percent | 000 lbs. | 000 lbs. | Cents | Cents | Dollars |
| 1934 | | | | | | | |
| April | 41,349 | 89.5 | 46,190 | 1,540 | 11 | 10 | 2.95 |
| May | 44,599 | 89.0 | 50,111 | 1,616 | 11 | 10 | 2.95 |
| June | 43,632 | 89.5 | 48,751 | 1,625 | 11 | 10 | 2.95 |
| July | 48,117 | 89.5 | 53,762 | 1,734 | 11 | 10 | 2.95 |
| August | 44,735 | 90.0 | 49,706 | 1,603 | 11 | 10 | 2.95 |
| September | 42,847 | 90.0 | 47,608 | 1,587 | 11 | 10 | 2.95 |
| October | 44,729 | 90.0 | 49,699 | 1,603 | 12 | 11 | 3.26 |
| November | 43,482 | 88.5 | 49,132 | 1,638 | 12 | 11 | 3.26 |
| December | 42,698 | 88.0 | 48,520 | 1,565 | 12 | 11 | 3.26 |
| 1935 | | | | | | | |
| January | 43,207 | 88.0 | 49,099 | 1,584 | 12 | 11 | 3.26 |
| February | 38,231 | 87.0 | 43,944 | 1,569 | 12 | 11 | 3.30 |
| March | 42,573 | 86.0 | 49,503 | 1,597 | 13 | 12 | 3.49 |
| April | 40,122 | 86.0 | 46,653 | 1,555 | 13 | 12 | 3.49 |
| April to September | | | | 1,618 | 11 | | |
| October to February | | | | 1,592 | 12 | | |
| % change | | | | -1.6 | +9.1 | | |
| March and April | | | | 1,576 | 13 | | |
| % change | | | | -1.0 | +8.3 | | |

Sales and Class I price compiled from reports of Market Administrator.
Retail prices compiled from reports of U. S. Department of Agriculture Market News Service.

Table 25. Sales and retail prices of fluid milk in the Detroit Sales Area.

| Year and month | Milk | | Daily | | Class I | | | |
|----------------------|----------|-------------|-----------|-----------|-----------|-----------|--------|------------|
| | Class I | reported | Estimated | Estimated | sales | Retail | Retail | price |
| | sales | as percent | total | average | adjusted | delivered | store | per cwt. |
| | of | of esti- | Class I | daily | for sea- | price | price | of 3.5% |
| | milk | mated | sales | Class I | sonal Va- | per | per | milk |
| | | total sales | | sales | riation | quart | quart | f.o.b.City |
| | 000 lbs. | Percent | 000 lbs. | 000 lbs. | 000 lbs. | Cents | Cents | Dollars |
| 1934 | | | | | | | | |
| April | 35,448 | 90 | 39,387 | 1,313 | 1,275 | 10 | 10 | 2.02 |
| May | 37,853 | 98 | 38,626 | 1,246 | 1,217 | 10 | 10 | 2.02 |
| June | 35,957 | 99 | 36,320 | 1,211 | 1,172 | 10 | 10 | 2.15 |
| July | 35,496 | 98 | 36,220 | 1,168 | 1,180 | 11 | 11 | 2.25 |
| August | 34,344 | 98 | 35,045 | 1,130 | 1,137 | 11 | 11 | 2.25 |
| September | 33,731 | 97 | 34,774 | 1,159 | 1,175 | 11 | 11 | 2.25 |
| October | 34,776 | 98 | 35,486 | 1,145 | 1,128 | 11 | 11 | 2.25 |
| November | 33,419 | 98 | 34,101 | 1,170 | 1,195 | 11 | 11 | 2.38 |
| December | 33,671 | 98 | 34,358 | 1,108 | 1,143 | 11 | 11 | 2.27 |
| 1935 | | | | | | | | |
| January | 34,804 | 95 | 36,636 | 1,182 | 1,231 | 11 | 11 | 2.25 |
| February | 31,948 | 98 | 32,600 | 1,141 | 1,146 | 11 | 11 | 2.40 |
| March | 35,868 | 98 | 36,600 | 1,181 | 1,153 | 12 | 12 | 2.48 |
| April to June | | | | 1,257 | 1,221 | 10 | | |
| July to February | | | | 1,150 | 1,167 | 11 | | |
| % change | | | | -8.5 | -4.4 | +10.0 | | |
| March | | | | 1,181 | 1,153 | 12 | | |
| % change | | | | +2.7 | -1.2 | +9.1 | | |

Sales and Class I price: Compiled from reports of Market Administrator.

Retail prices: Compiled from reports of the United States Department of Agriculture Market News Service.

1/ See test for index used.

Table 26. Sales and retail prices of fluid milk
in the Evansville Sales Area.

| Year and month | : :Class I :sales of :butter- :fat : | :Milk re- :ported as :percent of :estimated :total :sales | : :Estimated :Class I :sales of :butterfat : | : :Estimated :average :daily :Class I :sales of :milk :equivalent | :Retail: :deliv- :ered :price :per :quart : | :Retail: :store :price :per :quart : | :Class I :price per :pound :butterfat :f.o.b. :city |
|----------------------|---|--|---|--|---|---|--|
| | : :Pounds : | : :Percent : | : :Pounds : | : :Pounds : | : :Cents : | : :Cents : | : :Cents : |
| 1934 | : | : | : | : | : | : | : |
| March | : 55,017 | : 90 | : 61,130 | : 51,893 | : 8.32 | : 8.2 | : 48 |
| April | : 47,589 | : 90 | : 52,877 | : 46,383 | : | : 9 | : 48 |
| May | : 46,979 | : 87 | : 53,999 | : 45,840 | : 9 | : | : 48 |
| June | : 46,210 | : 85 | : 54,365 | : 47,689 | : 9 | : 8-9 | : 48 |
| July | : 47,767 | : 95 | : 50,281 | : 42,683 | : 9 | : 8-9 | : 48 |
| August | : 45,008 | : 90 | : 50,009 | : 42,452 | : 9 | : 8-9 | : 48 |
| September | : 40,557 | : 88.6 | : 45,775 | : 40,154 | : 9 | : 8-9 | : 48 |
| October | : 42,407 | : 87 | : 48,744 | : 41,404 | : 9.5 | : 9-10 | : 48 |
| November | : 41,153 | : 89 | : 46,239 | : 40,561 | : 9.5 | : 9-10 | : 51.5 |
| December | : 41,184 | : 88 | : 46,800 | : 39,728 | : 9.5 | : 9-10 | : 53 |
| 1935 | : | : | : | : | : | : | : |
| January | : 43,351 | : 90 | : 48,168 | : 40,890 | : 9.5 | : 9-10 | : 53 |
| February | : 40,059 | : 88 | : 45,522 | : 42,784 | : 9.5 | : 9-10 | : 53 |
| March | : 45,090 | : 89 | : 50,663 | : 44,441 | : 9.5 | : 9-10 | : 53 |
| May to Sept. | : | : | : | : 45,764 | : 9 | : | : |
| Oct. to Mar. | : | : | : | : 41,635 | : 9.5 | : | : |
| Percent change | : | : | : | : -4.9 | : + 5.6 | : | : |

NOTE: Percentage changes from March sales and prices were not calculated since sales during that month appear to have been unduly high.

Sales and Class I prices: Compiled from reports of Market Administrator.
Retail prices: Compiled from reports of the United States Department of
Agriculture Market News Service.

Table 27. - Sales and retail prices of fluid milk in the Grand Rapids Sales Area.

| Year and month: | Class I : sales of milk | Milk report-: | | Estimated total : Class I Sales | Estimated delivered : daily : Class I : sales | Retail : | | Class I : price per cwt. of 3.5% milk : f.o.b. city |
|--------------------|-------------------------|--|---------|---------------------------------|---|---------------------------|---------------------------|---|
| | | ed as per- : cent of es- : timated to- : tal Class I : Sales | Percent | | | average : price per quart | store : price : per quart | |
| | Pounds | | | Pounds | Pounds | Cents | Cents | Dollars |
| 1934 | | | | | | | | |
| August | 3,850,687 | 97.9 | | 3,933,286 | 126,880 | 9 | 9.0 | 1.85 |
| September | 3,809,520 | 99.7 | | 3,820,983 | 127,366 | 9 | 9.5 | 1.85 |
| October | 3,920,693 | 99.0 | | 3,960,296 | 127,751 | 10 | 10.0 | 1.85 |
| November | 3,758,861 | 99.0 | | 3,796,829 | 126,561 | 10 | 10.0 | 2.10 |
| December | 3,848,021 | 99.6 | | 3,863,475 | 124,628 | 10 | 10.0 | 2.10 |
| 1935 | | | | | | | | |
| January | 3,906,824 | 99.0 | | 3,946,287 | 127,300 | 10 | 10.0 | 2.10 |
| February | 3,575,805 | 99.0 | | 3,611,924 | 128,997 | 10 | 10.0 | 2.10 |
| March | 3,928,662 | 99.0 | | 3,968,345 | 128,011 | 10 | 10.0 | 2.10 |
| August & September | | | | | | | | |
| October to March | | | | | 127,123 | 9 | | |
| % Change | | | | | 127,208 | 10 | | |
| | | | | | | + 11.1 | | |

Sales and Class I price compiled from Reports of Market Administrator.
 Retail prices compiled from reports of U. S. Department of Agriculture Market News Service

Table 28. Sales and retail prices of fluid milk
in the Kalamazoo Sales Area

| Year and month | Class I Sales of Milk | Milk re- ported as: percent of estima- ted total: Class I Sales | Estimated total Class I Sales | Estima- ted av- erage daily Class I Sales | Retail deliv- ered and store prices per qt. | Class I price per cwt. of 3.5% milk f.o.b. City Dollars |
|----------------------|-----------------------------|---|--|---|---|---|
| | Pounds | Percent | Pounds | Pounds | Cents | Dollars |
| <u>1934</u> | | | | | | |
| July | 1,236,034: | 98 | 1,261,259 | 40,686: | 10 | 1.85 |
| August | 1,053,642: | 98 | 1,075,145 | 34,682: | 10 | 1.85 |
| Sept. | 1,043,354: | 98 | 1,064,447 | 35,488: | 10 | 1.85 |
| October | 1,078,968: | 98 | 1,100,987 | 35,516: | 10 | 1.85 |
| November | 1,062,866: | 95 | 1,118,806 | 37,294: | 10 | 1.85 |
| December | 1,145,373: | 95 | 1,205,656 | 38,892: | 8 | 1.85 |
| <u>1935</u> | | | | | | |
| January | 1,211,198: | 97 | 1,274,945 | 41,127: | 8 | 1.85 |
| February | 1,144,550: | 98 | 1,179,948 | 42,141: | 8 | 1.85 |
| March | 1,196,868: | 95 | 1,251,294 | 39,397: | 10 | 2.00 |
| July to | : | : | : | : | : | : |
| November: | : | : | : | 36,733: | 10 | : |
| December: | : | : | : | : | : | : |
| to Feb.: | : | : | : | 40,720: | 8 | : |
| %Change | : | : | : | + 10.9: | -20.0 | : |
| March | : | : | : | 39,397: | 10 | : |
| % Change: | : | : | : | -3.2: | + 25.0 | : |

Sales and Class I Prices compiled from reports of Market Administrator.
Retail prices compiled from reports of U. S. Department of Agriculture
Market News Service.

Table 29. Sales and retail prices of fluid milk in the St. Louis Sales Area.

| Year and month | :Class I sales of milk | :Milk re-ported as percent of estimated total Class I sales | :Estimated total Class I sales | :Estimated average daily Class I sales | :Index of average daily Class I sales | :Retail delivered price per quart | :Class I price per cwt. of 3.5% milk f.o.b. city |
|----------------|------------------------|---|--------------------------------|--|---------------------------------------|-----------------------------------|--|
| | : 000 Lbs. | : Percent | : 000 Lbs. | : 000 Lbs. | : Per-cent | : Cents | : Dollars |
| 1934 | | | | | | | |
| April | : 16,824 | : 99.8 | : 16,858 | : 562 | : 102 | : 11 | : 1.85 |
| May | : 18,091 | : 100.0 | : 18,091 | : 584 | : 106 | : 11 | : 1.85 |
| June | : 17,928 | : 100.0 | : 17,928 | : 598 | : 109 | : 11 | : 2.00 |
| July | : 18,229 | : 99.7 | : 18,284 | : 590 | : 107 | : 11 | : 2.00 |
| August | : 17,482 | : 99.8 | : 17,517 | : 565 | : 102 | : 11 | : 2.20 |
| September | : 16,167 | : 99.7 | : 16,216 | : 541 | : 98 | : 11 | : 2.35 |
| October | : 16,923 | : 99.5 | : 17,008 | : 549 | : 99 | : 11 | : 2.35 |
| November | : 15,676 | : 97.9 | : 16,012 | : 534 | : 97 | : 11 | : 2.18 |
| December | : 15,769 | : 99.8 | : 15,801 | : 510 | : 92 | : 11 | : 2.00 |
| 1935 | | | | | | | |
| January | : 15,952 | : 99.6 | : 16,016 | : 517 | : 94 | : 11 | : 2.00 |
| February | : 14,709 | : 99.5 | : 14,783 | : 528 | : 96 | : 11 | : 2.00 |
| March | : 16,783 | : 99.9 | : 16,800 | : 542 | : 98 | : 11 | : 2.22 |
| Average | | | | : 552 | : 100 | | |

Sales and Class I prices: Compiled from Reports of Market Administrator.

Retail prices: Compiled from reports of the United States Department of Agriculture Market News Service.

